

USAF ETAC TN 70-6

# ENVIRONMENTAL *Technical Applications Center*

TECHNICAL NOTE  
70-6

ETAC

A  
SELECTED ANNOTATED BIBLIOGRAPHY  
OF ENVIRONMENTAL STUDIES OF  
POLAND

Compiled by  
Alvin L. Smith, Jr.

JUNE 1970

AD 709762



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### Purpose

USAF ETAC Technical Notes are published by the USAF Environmental Technical Applications Center to disseminate aerospace sciences information to units of the Air Weather Service. Subject matter contained in these Technical Notes, while pertinent, is not deemed appropriate for publication as Air Weather Service Technical Reports which are confined to those studies, reports, techniques, etc., of a more permanent and specific nature. Technical Notes include such material as wing seminar listings, bibliographies, special data compilations, climatic studies, and certain USAF ETAC project reports which may be of special interest to units of the AWS organization. This series is published under the provisions of AFR 6-1 and AWSR 80-2, as amended.

### Distribution

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### Preface

One of the primary functions of the Technical Information Section of the USAF Environmental Technical Applications Center (ETAC) is to locate reference material requested by the various governmental agencies and those civilian organizations completing government contracts. The requests are generally initiated to aid in the solution of specific problems. However, many of these bibliographies represent a substantial listing of pertinent sources which, having been compiled, could prove very beneficial to other researchers with similar interests in subject matter or area of coverage. It is with this in mind that USAF ETAC publishes certain reference listings such as this bibliography. It is believed that, by publication and distribution of these consolidated reference lists, much of the time-consuming reference-searching of the researcher can be eliminated.

Inclusion of an item in this listing does not constitute an indorsement of the information included therein by the DOD, USAF, Air Weather Service, or USAF ETAC. It also must be noted that references selected for this bibliography should not be construed as being the best or only references available as many excellent papers, reports, etc. were no doubt overlooked during the limited search period allotted the author for this project.

The valuable assistance obtained from personnel of the various libraries in the Washington, D.C. area is gratefully acknowledged; their efforts facilitated the task of reference searching for this publication. My thanks to Mrs. Edna G. Robinson of the Editorial Section who typed the numerous abstracts which make up this technical note.

## INTRODUCTION

This bibliography was compiled as a by-product of the regular reference-searching that is one aspect of the normal work-load of the Technical Information Section, USAF ETAC. Many of the abstracts herein were taken from the publications themselves, many others, or parts of abstracts, from Meteorological and Geostrophysical Abstracts (Am. Met. Soc.), and others were prepared by members of the Technical Information Section of USAF ETAC. The individuals below are credited with the preparation of one or more abstracts shown in this publication.

| <u>Initials</u> |                     | <u>Initials</u> |                    |
|-----------------|---------------------|-----------------|--------------------|
| ALS             | Alvin L. Smith, Jr. | ILD             | Isadore L. Dordick |
| AV              | Andre Vandenplas    | LB              | Lawrence Berry     |
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| DBK             | Dov B. Kringold     | SN              | Sylvia Nowinska    |
| ES              | Evelyn Sinha        | VJC             | Vincent J. Creasi  |
| GT              | Geza Thuronyi       |                 |                    |

Since only a limited time was available to the authors to compile this reference listing, it is very possible that, in some cases, an author's best work is not the item we have included. Furthermore, some important papers, reports, summaries, etc., undoubtedly have been completely overlooked in our search and we offer our apologies for such unintentional oversights.

This bibliography is divided into two sections, the first contains reference items which have been translated into English from the original Polish; the second contains 110 items numbered consecutively and arranged alphabetically by author. Those items available in a language other than Polish have the applicable language entered opposite the abstract in the left-hand margin. For the reader's convenience a subject index is provided for both the translations and the other listings. Each item lists a source at which the publication may be located either by library card catalogue number, AD number, or other indicator. All items were located within the Washington, D.C. area. Abbreviations denoting the various libraries are identified under Index to Source Symbols below.

Index to Source Symbols

|            |   |
|------------|---|
| AD Numbers | Federal Clearinghouse of<br>Scientific Technical Information<br>Springfield, Va 22151 |
| Census     | Census Bureau Library, FOB 3<br>Suitland, Md  |
| DAS        | Atmospheric Sciences Library<br>ESSA, Silver Spring, Md                               |
| DAS P col  | Periodical Collection<br>Atmospheric Sciences Library<br>Silver Spring, Md            |
| DLC        | Library of Congress   |

Index to Source Symbols (cont'd)

IPE

Information & Publication Branch  
USAF ETAC

JPRS

Joint Publications Research Service  
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Washington, D.C. 20443SUBJECT INDEX

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# POLISH PUBLICATIONS

The Panstwowy Instytut Hydrologiczno-Meteorologiczny [State Hydrological and Meteorological Institute] of Poland issues certain periodic and/or aperiodic publications. The items listed below are some of these.

## DAILY

Biuletyn Synoptyczny [Synoptic Bulletin] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warsaw since 1959.

...Includes synoptic reports (00 and 12 GMT) of aprx 20 stations and soundings from 4 radiosonde observations, weather charts and a discussion.

Mapa Synoptyczna [Synoptic Map] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warsaw since 1947.

...Includes a surface chart of Europe, weather reports (00 GMT) from aprx 20 Polish and 18 foreign stations, a discussion of the weather and an outlook for Warsaw.

Charakterystyka Opadów [Description of Precipitation] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warsaw since 1955.

...Includes a chart showing precipitation and temperature extremes from aprx 65 stations.

Biuletyn Lodowy [Ice Bulletin] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Szczecin and Gdynia since 1956.

...Includes a review of ice conditions in the Baltic and adjacent sea areas and ice reports from coastal stations.

Biuletyn Stanu Wody z Dnia [Water Bulletin] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warsaw.

...Includes hydrological information for aprx 30 stations.

## WEEKLY

Biuletyn Hydrologiczny [Hydrological Bulletin] issued by Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warsaw.

...Includes charts showing precipitation amounts, depth of snow cover, height of water table and river stage data. Also, contains a review and outlook for the coming week.

TEN-DAY

Komunikat Rolniczo-Meteorologiczny [Agro-Meteorological Report] issued by Panstwowy Institut Hydrologiczno-Meteorologiczny, Warsaw since August 1956.

...Includes climatological data for aprx 50 stations, isonomalies of temperature and precipitation.

MONTHLY

Morski Komunikat Hydrologiczno-Meteorologiczny [Marine Hydrometeorological Report] issued by Panstwowy Institut Hydrologiczno-Meteorologiczny, Gdynia since 1961.

...Includes climatological summaries for aprx 15 stations along the Baltic Sea. Also, contains data on the radioactivity of the air, precipitation, and sea and river water taken at Gdynia. Other marine info is also furnished.

Komunikat Rolniczo-Meteorologiczny [Agro-Meteorological Report] issued by Panstwowy Institut Hydrologiczno-Meteorologiczny, Warsaw since January 1958.

...Includes temperature and precipitation data for aprx 60 stations. Climatological and phenological charts are shown.

ANNUAL

Rocznik Meteorologiczny [Meteorological Annual] issued by Panstwowy Institut Hydrologiczno-Meteorologiczny, Warsaw since 1954.

...Includes data (07, 13, and 21 LT) for aprx 20 climatological stations, monthly and annual summaries, and dates of first and last frost for aprx 400 stations. DAS M06.1/438 R684ro.

Opady Atmosferyczne [Atmospheric Precipitation] issued by Panstwowy Institut Hydrologiczno-Meteorologiczny, Warsaw since 1954.

...Includes daily precipitation records for aprx 420 stations, plus monthly and annual precipitation data for aprx 2300 stations. Tabulated data on other precipitation and snow cover are furnished. DAS M77.32/438 P762op.

OCCASIONAL

Prace PIHM [Works of the Panstwowy Institut Hydrologiczno-Meteorologiczny] have been published since 1946.

## PREVIOUSLY PUBLISHED BIBLIOGRAPHIES

\* \* \* \* \*

These excellent bibliographies, noted during our reference search, pertain to the climatology or the environment of Poland and are listed below for the added convenience of the reader.

1961

Grimes, Annie E. An Annotated Bibliography on Climatic Maps of Poland. WB/BM-31, Wash., D.C., U.S. Weather Bureau, Jan 1961, 15 p, 46 titles. DAS M(016) U587bpc Maps 1961.

...This bibliography has 46 entries which were obtained from sources available in the Weather Bureau Library or the Library of Congress. (VJC)

1962

(Translation)

U.S. Library of Congress. Polish Meteorology, Bibliography. Aerospace Information Division, Wash., D.C. AID Rpt 62-3, 10 Jan 1962. 31 p, 122 refs. TT 63-19732. AD 621886.

...This is a preliminary annotated bibliography on the meteorological service of Poland. Polish source materials in the form of monographs, periodicals and newspapers from 1955 to 1961 inclusive have been covered, though a few items published prior to 1955 which are considered exceptionally pertinent to the subject matter have also been included. The primary emphasis in compilation has been placed on the following aspects of the meteorological service: a) meteorological organizations in the country; b) weather observing facilities, especially those at airports; c) weather forecasting facilities; d) inflight facilities for aircraft; and e) competence and training of personnel. (Author)

1963

Rajman, Jan (Compiler). Bibliography of Polish Meteorology and Climatology up to 1939 [Bibliografia z Zakresu Meteorologii i Klimatologii Polskiej do roku 1939], Poland Panstwowy Instytut Hydrologiczno-Meteorologiczny, 1963, 240 p. Translation of Polish Monograph by Wanda Ferens, (1968). TT 65-50501.

...4199 entries are arranged alphabetically by author under the following categories: General meteorology, Physical and dynamical meteorology, Applied meteorology, General climatology, Papers and monographs on various factors, Regional climatology, Applied climatology, List of Polish periodicals and publications. Titles under each section are broken down into sub-sections, such as Instruments and methods of observation, Textbooks, Instructions, Atlases, etc. The original citation is given intact, with translation of title into English. This bibliography covers literature by Polish writers and many articles about the meteorology and climatology of Poland. (DMG)

Roman, Simon J. An Annotated Bibliography of Climatic Maps for Poland, U.S. Dept. of Commerce, Weather Bureau, Wash., D.C. WB/BM-63, Dec 1963 (Revised). AD 660841.

1967

Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny, Bibliografia Meteorologiczna Polska 1940-1960 [Meteorological Bibliography Poland 1940-1960], Warsaw. Wydawnictwa Komunikacji i Łączności, 1967. 370 p. Title page, table of contents, and introduction in English. DAS M(016) P762 bib.



A SELECTED ANNOTATED BIBLIOGRAPHY  
OF ENVIRONMENTAL STUDIES OF POLAND  
(1960-1969)

### *Translations*

The following translations were accomplished by the Scientific Publications Foreign Center, Central Institute for Scientific, Technical, and Economic Information, Warsaw, Poland.

These reports are listed alphabetically by author and include the applicable TT numbers by which they may be purchased from: Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151. These reports are available for the most part from Atmospheric Sciences Library AD 711 ESSA U.S. Department of Commerce, Silver Spring, Md. 20910 and are listed under Library Accession Number: DAS M(05) P 972 aE (Vol - date, pp), unless otherwise noted.

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1. Boniecka-Zolcik, Helena. Frequency of Air Temperature Inversions Observed at Krynica-Spa in the Period 1956 to 1960 [Częstota inwersji temperatury powietrza w Krynicy-Zdroju w okresie 1956-1960], Przegląd Geofizyczny, Vol. 8(16), No. 1-2, 1963, pp 37-44. Translated from Polish by Maria Hoser (1966), TT 65-50391.

...From observational data considered in this work, it is of interest to note that air temperature inversions are a frequent phenomenon occurring at Krynica, since 60% of all the days in a year are days with inversions. In the period 1956 to 1960, there were 21 months during which the number of days with air temperature inversions exceeded 20, while in the month of August 1957, the number of days totaled 28. In general, air temperature inversions occur more frequently from May to Sep than in the remaining months; the maximum falling in May, Aug, or Sep; air temperature inversions occur very rarely from Nov to Jan (minimum in Dec). (Author)

2. Boryczka, J. and Okolowicz, W. Turbulent Diffusion of Dusts and Other Air Contaminants in Different Seasons in Relation to the Character of the Ground, Especially under Urban Conditions [Turbulencyjne rozprzestrzenianie się pyłów i innych zanieczyszczeń powietrza w różnych porach roku w zależności od charakteru podłoża ze szczególnym uwzględnieniem warunków miejskich], Przegląd Geofizyczny, Vol. 9(17), No. 2, 1964, pp 121-137. Translated from Polish by Witold Kulerski (1967). TT 65-50386.

...Practical reasons make it increasingly important to know the mechanism of turbulent transport of dust in the layer closest to the ground surface. As artificial sources of pollution grow more numerous, the need arises for direct measurements of dust content, or indirect methods for the determining of the distribution of the concentrations of dust or other contaminants in air. In the literature many formulae are known that relate to the spatial distribution of dusts. They are all derived from the general equation for turbulent air diffusion, except that different authors work with different assumptions and boundary conditions. (Author)

3. Boryczka, Jerzy. Pattern of Certain Meteorological Elements Depending on Vertical Turbulent Exchange of Heat [Kształtowanie się niektórych elementów meteorologicznych zależnie od pionowej turbulencyjnej wymiany ciepła], Przegląd Geograficzny, Vol. 36, No. 1, 1964, pp 119-129. Translated from Polish by Karol Jurasz (1967). TT 65-50379.

...The author's object is to detect interdependence between the magnitude of vertical turbulent exchange of heat and certain meteorological elements, he pays particular attention to the dependence on temperature of the climatic index of vertical turbulent exchange of heat, and to the pattern of water-vapor density depending on vertical heat exchange.

Values of the climatic turbulence factor, temperature, water-vapor density, moisture deficit, and wind speed were determined on the basis of a 4-yr series of observations (1959-1962) at different heights in the 0-200 cm layer. (Author)

4. Burakowski, Tadeusz. Some Methods and Findings in Research on Trace Elements in Atmospheric Precipitation in Warsaw [Niektóre metody i wyniki badań substancji śladowych w opadach atmosferycznych w Warszawie], Przegląd Geofizyczny, Vol. 7, No. 3, 1962, pp 193-202. Translated from Polish by Malgorzata Widomska (1967). TT 65-50398.

...Concurrently with the advance of modern chemistry, considerable attention has been paid to research on trace elements in air and atmospheric precipitation. Knowledge of their kind and quantity is of major importance in many fields of science and life - for example, in geochemistry, agriculture, hygiene (air pollution), technology (corrosions),

## 4. (cont)

etc. The precipitation is collected during a calendar month by means of special glass funnels made by cutting off the bottom of an inverted 3-liter plexiglass laboratory bottle. The funnel - 184 sq cm surface - is placed in the top opening of a specially constructed wooden box with double walls. The receiving vessel made of polyethylene is housed in this box (which serves also for continuous collection of air samples for chemical analysis of the contents of trace elements). The box is equipped with an automatic electric heating device which causes solid precipitation to melt in the funnel and flow down to the receiver; the water being protected from loss and external pollution. (Author)

5. Chomicz, Kazimierz. On the Influence of Local Conditions on the Course of Meteorological Elements [O wpływie warunków lokalnych na przebieg elementów meteorologicznych], Przegląd Geofizyczny, Vol. 8(16), No. 1-2, 1963, pp 11-19. Translated from Polish by Maria Hoser (1966). TT 65-50389.

...This study is devoted to microclimatic parameters in Polish urban areas. Temperature, winds, relative humidity, wind speed, and wind velocity are compared for Cracow and Olkusz. (DLS)

6. Czarnowski, Maciej S. Relationship Between the Evapotranspiration and Spatial Distribution of Vegetation Cover [Związek między parowaniem terenowym a rozmieszczeniem przestrzennym typów szaty roślinnej], Przegląd Geograficzny, Vol. 36, No. 2, 1964, pp 245-284. Translated from Polish by the author (1966). TT 65-50376.

...Assuming that evapotranspiration involves a considerable proportion of the vegetal cover which, in turn, is a manifestation of climate, the writer works out a formula expressing evapotranspiration as a function of precipitation and air humidity. He finds that in central Europe the formula proposed can only be used for summer periods. (Author)

7. Debaki, Kazimierz. Continental Hydrology, Pt. 1, Hydrometry [Hydrologia kontynentalna, Pt. 1, Hydrometria], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Ser. A, Instrukcje i Podreczniki, No. 31, issued Warsaw, 1955, 403 p. 284 figs, 36 tables. Translated from Polish by M. Widomska (1966) TT 63-11404.

...In this detailed text, hydrological instruments used in Poland and other countries are described and shown in diagrams, and the methods of measurement and computation are explained. After an introductory section in which networks, activities, and publications of the Polish hydrological and hydrometeorological services are discussed, the author takes up the construction and use of river gages, sounding instruments, current meters, ground-water instruments, rain gages, evaporimeters, and thermometers. Chapters 16-18 are of particular meteorological interest. They deal with atmospheric precipitation and its observation; the Polish precipitation network; various types of precipitation gages and their operation; analysis of precipitation data (an average rainfall chart of Poland is presented); evaporation and its direct (evaporimeters, lysimeters) and indirect determination; evaporation from snow; atmospheric pressure, humidity, and wind; and atmospheric and soil thermometry. (GT)

8. Debaski, Kazimierz. Continental Hydrology Vol. II, Physics of Water, Atmospheric Precipitation and Evaporation [Hydrologia Kontynentalna: Czesc II Fizyka Wody, opady Atmosferyczne i Parowanie], 547 p. Published by Wydawnictwa Komunikacyjne, 1959. Warsaw. Translated from Polish by M. Widymaska (1966). TT 63-11405.

...The 1st Vol, probably the most complete up-to-date treatment of hydrometry, embraces observations, instruments, and techniques of measurements of states and discharge of streamflow, surface runoff, and of ground water including porosity, permeability, and ground freezing; of precipitation; of evaporation of soil and water; and of air temperatures. Volume II which is devoted to descriptive and scientific hydrology actually consists of 6 parts. Part 1 includes the description of water and water phenomena in geographic, zonal, or monographic order and includes sections on the hydrologic cycle and on the water balance of the land, oceans, and Europe. Climate and its various elements (temperature, humidity, wind) as they affect hydrologic conditions are treated in Part 2 entitled "Water in the Atmosphere". The remaining 4 parts deal with precipitation and its variability and with water surface and total evaporation (evapotranspiration). The material for both volumes was taken primarily from Polish, Russian, French, German, and American sources. (DBK)

9. Haman, Krzysztof. Some Actual Problems in Numerical Weather Forecasting [Niektore wspolczesne problemy numerycznych prognoz pogody], Przegląd Geofizyczny, Vol. 9(17), No. 1, 1964, pp 25-51. Translated from Polish by M. Widymaska (1966). TT 65-50382.

...Discusses basic information on the mechanism of weather changes and the related parameters; mathematical models and equations of the motion of air masses, atmospheric motions; filtration; quasistatic and quasi-geostrophic hypothesis; wave and linear mathematical models, etc. Several equations are used. (Author)

10. Hess, Mieczyslaw. Frequency of Occurrence of Different Daily Mean Temperature Values in Particular Vertical Climatic Zones of the West Polish Carpathian Mts [Czestosc wystepowania roznych wartosci srednich temperatur dobowych powietrza w poszczegolnych pietrach klimatycznych polskich Karpat Zachodnich], Przegląd Geofizyczny, Warsaw, Vol. 10, No. 3-4, 1965, pp 257-270. Figs, tables, refs. English summary p 270. Translated from Polish by M. Widymaska (1967). TT 67-56082.

...The author based his study on the records of 20 climatological stations located at different points of the vertical Carpathian profile, and compared the annual and monthly number of days with mean diurnal temperature between different intervals. The course of the annual mean temperature in the vertical profile of the particular groups of the West Carpathians is presented. The Carpathians reflect 6 vertical climatic zones, viz. 1) the cold, 2) moderately cold, 3) very cool, 4) cool, 5) moderately cool, and 6) moderately warm, whose limits correspond to two degree (2°) steps in annual mean temperatures. The author defined the number of those days corresponding to the particular climatic zones and the numbers of those days for the particular months. A close relationship was found between monthly mean temperature and the occurrence frequency of different mean diurnal temperatures. (Author)

11. Jaworska, Bogumila et al. Technique of Airplane Observation of Cloud Structure [Technika samolotowych badan struktury chmur], Przegląd Geofizyczny, Vol. 9(17), No. 2, 1964, pp 157-172. Translated from Polish by Witold Kulerski (1967). TT 65-50387.

## 11. (cont)

...Studies of cloud structure and microstructure are important for the understanding of the course of processes of condensation in the atmosphere over a specific area and offer a basis for the developing of a more accurate method of forecasting meteorological phenomena important to aviation, agriculture, and other fields of the national economy. Studies of this kind were started in Poland by the Department of Aerology of State Institute of Hydrometry and Meteorology in 1961. (Author)

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12. Kluge, Mieczyslaw and Krawczyk, B. The Albedo Map of the Region of Wojcieszów Górny, Silesia [Mapa albedo okolic Wojcieszowa Górnego], *Przegląd Geograficzny*, Vol. 36, No. 1, 1964, pp 131-141. Translated from Polish by Karol Jurasz (1967). TT 65-50380.

...Authors discuss the methods of measurement and construction of the maps. Table 1 gives percentage of mean albedo values for different types of surfaces. Three maps are included showing actual albedo values, values grouped in class zones, and those values grouped in class zones for different types of surfaces. (ALS)

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13. Kopcewicz, Teodor. Advances in Physics of the Atmosphere and Meteorology in Poland in Two Decades [Orozowju fizyki atmosfery i meteorologii w dwudziestolecu Polski Ludowej], *Przegląd Geofizyczny*, Warsaw, Vol. 10, No. 1, 1965, pp 3-17. Translated from Polish by M. Widymaska (1965). TT 67-56084.

...The Polish meteorological service was suspended and the equipment of its stations idle during the 5 yrs of foreign occupation in World War II; while in western countries, the science of physics of the atmosphere advanced at a fast pace to meet military needs. A review of post-war Polish reconstruction of meteorological stations and the training of a new staff is presented. The Chair of Physics of the Atmosphere was established in Warsaw in the late 1940's under the leadership of the writer. The reestablished Polish meteorological service was concerned with weather forecasting, large scale atmospheric motion, observations of the stratosphere, studies of atmospheric turbulence, and publications dealing with Polish climatology. The membership of Poland in the World Meteorological Organization facilitated the acquisition of equipment, and provided essential help in training young scientists abroad, particularly in forecasting and cloud physics. (SN)

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14. Kopcewicz, Teodor. Influence of Meteorological Conditions on the Concentration of Radioactive Aerosol in Ground-Air Layers [Wplyw warunków meteorologicznych na koncentracje pyłów radioaktywnych u powierzchni ziemi], *Przegląd Geofizyczny*, Vol. 9(17), No. 1, 1964, pp 3-24. Translated from Polish by M. Widymaska (1966). TT 65-50381.

...Radioactive particulate matter, whose presence and concentration in the lower part of the troposphere can be studied by pumping the air through filters and measuring the activity of the precipitate, can be of 2 kinds - natural and artificial. The natural particles are derivatives of the natural radioactive elements radon (Rn), thoron (Tn) and actinon (An), while the artificial compounds are primarily fission products of nuclear explosions. (Author)

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15. Korpciewicz, Teodor et al. Selected Problems of the Physics of Hail and Means of Combating Hail: Report on the Cracow Symposium on Combating Hail [Wybrane zagadnienia z fizyki gradu i srodkow walki z nim: sprawozdanie z krajowego sympozjum walki z gradem], Przegląd Geofizyczny, Warsaw, Vol. 10, No. 2, 1965, pp 171-213. Figs, tables, eqs. Translated from Polish by M. Widymaska (1967). TT 67-56085.

...Attempts were made to combat hail in Poland by making use of research in other western countries. The thermodynamic and synoptic conditions favoring the formation of hailstorms are described. The altitude and temperature of the upper boundary of clouds producing thunder and hailstorms, studied by radar echoes, are reproduced in curves. The structure and thermal balance of hailstones in various atmospheric conditions are given. The possibilities of hail prediction are discussed. (SN)

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16. Koźmiński, Czesław. Geographical Distribution of the Heavier Hailstorms Recorded in Poland in the 1946-1956 Period [Geograficzne rozmieszczenie wiekszych burz gradowych zanotowanych na obszarze Polski w latach 1946-1956], Warsaw. Przegląd Geograficzny, Vol. 36, No. 1, 1964, pp 87-102. Translated from Polish by Karol Jurasz (1967). TT 65-50377.

...This paper constitutes an attempt to characterize all heavier hailstorms recorded on Polish territory in the 1946-56 period; giving their range, their rate and direction of movement, the synoptic conditions of their occurrence, and their geographical distribution. (Author)

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17. Koźmiński, Czesław and Piech, Marian. Variations in Hailstorm Frequency and Hail Damage in Poland [Wahania częstości burz i szkód gradowych w polsce], Przegląd Geofizyczny, Warsaw, Vol. 10, No. 1, 1965, pp 65-69. Translated from Polish by M. Widymaska (1967). TT 67-56087.

...Long-term variations in hailstorm frequency and hail damage to cereals on Polish territories are given on the basis of statistical material of the State Insurance Institute for 1949-1963 and observational data of 16 climatological stations of the State Institute of Hydrology and Meteorology for the years 1925-1964. Comparison of consecutive 3-yr means of days with hailstorms indicates certain variations in hailstorm-occurrence frequency. Similar fluctuations were observed with respect to the size of areas under grain cultivation affected by hail and total hail damage to cereals. Total damage to grain crops is roughly proportional to the size of the affected area. (Author)

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18. Krajewski, Karol. Application of the Universal Computer UMC-1 to Forecasting of Sets of Hydrological Phenomena [Zastosowanie uniwersalnej maszyny cyfrowej UMC-1 do prognozy zespolu zjawisk hydrologicznych], Przegląd Geofizyczny, Vol. 7(15), No. 2, 1962, pp 85-94. Translated from Polish by M. Widymaska. (1967). TT 65-50395.

...Dynamic forecasting of hydrometeorological phenomena by numerical process has for a long time been a major problem in hydrology and meteorology. A significant forward step was made in Z. Kaczmarek's recent papers. His probabilistic approach to prediction problems enables modern statistical methods to be applied to the elaboration of numerical prediction of single elements as well as of entire groups of phenomena. (Author)

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19. Kuziemski, Jerzy. Atmospheric Circulation as a Factor in Spatial Differentiation of Climatic Conditions in Poland [Cyrkulacja atmosferyczna jako czynnik przestrzennego zróżnicowania warunków klimatycznych w Polsce], Przegląd Geofizyczny, Vol. 7(15), No. 1, 1962, pp 23-36. Translated from Polish by Witold Kulerski (1967). TT 65-50394.

...The basic effect of circulation on the climate is exerted by controlling the exchange of air masses which carry with them the qualities they acquire over certain regions of the globe. When there is complete atmospheric calm, or merely a local exchange of air masses confined to the particular region considered, we may speak of a local or "autochthonous" climate in the full sense of this term. But with vigorous atmospheric circulation, a growing part is played by advection of various air masses, which reflect extraneous influences. The significance of the autochthonous and the extraneous factors for the climate, especially the microclimate, is discussed interestingly in an article by H. Keiser. We propose to review this question here in a more general way in evaluating the role of advection in the formation of the macroclimate. (Author)

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20. Lambor, Julian. Hydrologic Forecasting Methods [Metody prognoz hydrologicznych] Translation of the book "Metody Prognoz Hydrologicznych," published in 1962 by Wydawnictwo Komunikacji i Łączności, 339 p. Translated from Polish by Małgorzata Widomska (1967). TT 65-50311.

...According to the author, this textbook is the second in this field (the first by KOLLIS published in 1938) in Polish and also in world literature. It is to be supplemented by Matusiewicz's forthcoming book "Fundamentals of Hydrologic Forecasts". Written primarily for engineers and technicians in water management and hydraulic construction, this volume presents the most recent developments in the U.S. and in Poland and their applications to Polish conditions. Following are some of the topics dealt with: the Reitz-Kreps analytic equation of the flood wave; linear and nonlinear 2- and 3-gage and complex gage relations in short-range forecast of river rises; and medium-range river forecasts. One chapter each is devoted to: the Polish school of flood forecasting; the American school of flood forecasting; lag time and isochrones; prediction of reservoir inflow; prediction of flood-wave transformation in a reservoir; prediction of minimum flow volume; radar in hydrologic forecasting, including the U.S. hydrometeorologic radar network; and long range forecasting. (DBK)

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21. Lewińska, Janina. Determination of Water Content in Snow [Określenie zasobów wodnych śniegu], Przegląd Geofizyczny, Vol. 7(15), No. 4, 1962, pp 245-254. Warsaw, Translated from Polish by Maria Hoser (1967). TT 65-50500.

...The object of this work is to obtain "constant coefficients of water content in snow" which will enable determination of the water content in snow for any period of time on the basis of measurements of the snow-cover thickness. Such field measurements, being the simplest in meteorology, are made every day at a great many observational points and are transmitted to weather offices collecting hydrological data, while the measurements of water content in the snow cover requiring a great deal of work are taken only from 4 to 8 times per month at a limited number of stations. The results of measurements of water content in the snow cover which were obtained by a volumetric method at 15 stations of the Dunajec basin over a period of 10 years (1948-1957) constitute the basic, initial material for determining constant coefficients of water content in the snow cover. (Author)

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22. Matuszewicz, Jozef. Fundamentals of Hydrologic Forecasting [Podstawy Prognoz Zjawisk Hydrologicznych]. Translation of this book published by Wydawnictwa Komunikacji i Łączności, 1961, 169 p. Translated from Polish by Malgorzata Widomska (1968). TT 66-57041.

...The principal attention in this book is given to the analysis of the origin of the agents forming hydrologic phenomena. The significance and objects of forecasts are discussed together with the modes of elaboration of the basic materials and their utilization.

An attempt has been made not only to present to workers, engaged in the full-time practice of forecasting data, basic theories, and methods of application, but also to make such known to the many who in the exercise of their technical field work need a good working knowledge of the elements of hydrologic prediction. (Author)

23. Mikulski, Zdzisław. An Outline of Poland's Hydrography [Zarys hydrografii Polski], Translation of the book (same title) published in 1963 by Państwowe Wydawnictwo Naukowe, 288 p. Translated from Polish by Jerzy Dłutek (1968). TT 65-50375.

...In addition to an extensive hydrological description of Poland, a section on climate is included. Tables and maps are given for pressure, wind, clouds, temperature, humidity, evaporation, and precipitation. Table 3 gives mean monthly and annual temperature values in degrees centigrade for 70 stations. Table 7 gives mean monthly and annual precipitation values in mm for 70 stations. The period of record for both tables is 50 years (1881-1930). (DLB)

24. Molga, Marian. Outline of Agrometeorological Problems, Warsaw Centralny Instytut Informacji Naukowo-Technicznej i Ekonomicznej, 1962, 350 p. Figs, maps, bibliography. Translation of Part 2 of the original *Meteorologia rolnicza* [Agricultural Meteorology] by Marian Molga, Łódź, Warsaw Państwowe Wydawnictwo Rolnicze, 1958, 572 p. 244 figs, 132 tables, bibliography. Translation published for National Science Foundation & Dept. of Agriculture 1962 as OTS 60-21419.

...The second part of this work includes a well-developed outline of agrometeorology. Several biological questions being broached, this work constitutes one of the infrequent textbooks which deals with the various agrometeorological problems in a logical and appropriate manner. The 8 chapters include: 1) Meteorological conditions of the layer of air close to the ground, 2) Climate of soil, 3) Information on ecoclimate, 4) Influence of meteorological elements on organisms of plants, 5) Phenology, 6) Improvement of plant community conditions, 7) Agrometeorological service and 8) Working methods in agrometeorology. (AV)

25. Morawska, Maria. Diurnal and Annual Distribution of Sunshine in Cracow (1859-1958) [Dobowy i roczny przebieg usłonecznienia w Krakowie 1859-1958], *Przegląd Geofizyczny*, Vol. 7(15), No. 4, 1962, pp 229-244. Translated from Polish by Witold Kulerski (1967). TT 65-50399.

...Cracow is one of the few European cities that soon after construction of the Campbell-Stokes sunshine recorder embarked upon regular observations of this important meteorological element. A Campbell-Stokes heliograph was installed in Cracow in 1883. Thus, Cracow observations of sunshine are among the earliest in the world. Their important feature is that they have been carried out uninterruptedly, and the high qualifications of the observers make them fully reliable. For these reasons, the Cracow heliographic material is very valuable.



## 25. (cont)

Insolation of Cracow was analyzed by several authors, of whom W. Gorczyński was first, and later W. Dziewulski gave a most complete picture of the distribution of this element. However, the work of the former author ends with 1909, and that of the latter with 1916. Since heliographic material has accumulated over the subsequent decades, the need arose for a new analysis, especially because in 1942, a new instrument of the same type had replaced the old one. (Author)

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26. Okolowicz, Wincenty. Cloudiness in Poland [Zachmurzenie Polski], Prace Geograficzne No. 34, 1962, pp 1-97. Translated from Polish by Jerzy Dłutek, (1966). TT 65-50312.

...The author discusses the types of cloudiness, regional differences in cloudiness, and the distribution and annual course of the baric systems (highs and lows) on which, among other factors, cloudiness depends. Two figures are presented showing frequencies of lows and highs over Poland during 1950-1954. Maps of cloudiness show clear days, fairly bright days, cloudy days, very cloudy days, and days with convective cloudiness. Tables include the percentage frequency of occurrence of various cloudiness criteria on a monthly basis for different regions of Poland. (ALS)

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27. Parczewski, Władysław. Conditions Determining the Occurrence of Sudden Rises on Small Streams [Warunki występowania nagłych wzniesień na małych ciekach], Wiadomości Służby Hydrologicznej i Meteorologicznej, Vol. 8, 1960, pp 85-159. Translated from Polish by J. Dłutek, 1964. OTS 61-31302.

...This study shows that there are two types of sudden rises on small streams, namely, those caused by thaws determined by snow melting with intensive snowfalls and rains and those caused by heavy showers, downpours, and abundant stormy rainfalls. Among the many tables are: ten-day mean and maximum depths of snow cover, snow-cover density, distribution frequencies of downpours, frequency of occurrence of heavy showers, intense downpours, etc. Many maps of various atmospheric conditions, such as barometric tendencies, frontal locations, etc. are included. (ALS)

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28. Rojecki, Ananiasz. Some Notes Concerning the Oldest Meteorological Observations at Torun on the Background of Contemporaneous Observations at Warsaw [Kilka uwag o najdawniejszych obserwacjach meteorologicznych w Toruniu na tle wyników jednocześnie prowadzonych spostrzeżeń w Warszawie], Przegląd Geofizyczny, Warsaw, Vol. 10, No. 2, 1965, pp 141-151. Translated from Polish by (Unknown). (1967). TT 67-56102.

...This report contains meteorological observations at Torun which were taken from 1821 to 1825. From the data published, the first (probably-systematic) observations of air temperature commenced at Torun not later than the year 1740. Observations were made twice daily (morning and evening at unspecified hours) and included measurements of atmospheric pressure and air temperature, also (probably-visual) observations of wind directions and weather (precipitation and other hydrometeors). (Author)

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29. Rojecki, Ananiasz. Meteorology and Transport (On the Occasion of the World Meteorological Day 1963) [Meteorologia i transport] [Z okazji Światowego Dnia Meteorologicznego 1963], Przegląd Geofizyczny, Vol. 8(16), No. 1-2, 1963, pp 1-9. Translated from Polish by Malgorzata Widynska (1966). TT 65-50388.

...It is a matter of common knowledge that man and almost all his manifold activities were, are, and probably will also be in the future, dependent to a greater or lesser extent on the status of the atmosphere and the processes occurring in it. Their strongest impact is observed in agricultural production and in all branches of transportation. The daily press contains such reports as:

Again 2.5-5 meter snowdrifts on our roads - motorbus services suspended on many routes. - Storms over the Baltic, fishing craft shut in the harbors. - 81 victims of an aircraft disaster in Ankara caused by a low-ceiling collision, etc. (Author)

30. Schmuck, Adam. Evaporation in the Upper Bobr River Catchment and the Odra River near Wrocław in the Years 1957-1962 [Parowanie w zlewni górnego Bobru i na Odrze pod Wrocławiem w latach 1957-1962], Przegląd Geofizyczny, Vol. 10(18), No. 1, 1965, pp 19-31. Translated from Polish by Waldemar Bartasiewicz (1965). TT 67-56103.

...Comparative analysis of evaporation conditions on the Odra River near Wrocław and in the Sudeten Mts. has yielded the following results: total evaporation from the exposed water surface near Wrocław in the months May-Oct of the years 1957-1962 amounted to 618 mm, while in the Sudetens, it was only 322 mm, i.e., 52%. The evaporation gradient on the section Wrocław-Miszkowice was 66 mm/100 m, the rainfall gradient for the same time was +24 mm/100 m, which means that with rising elevation, evaporation decreases at a faster rate than the one at which rainfall increases. Maximum evaporation occurs in Jun, minimum in Oct. The precipitation: evaporation ratio (P/V) on the Odra near Wrocław is constantly unfavorable. (Author)

31. Stachy, Juliusz. The Activities of the National Institute for Hydrology and Meteorology in Studying Runoff Conditions in Poland [Prace PIHM w zakresie poznania stosunków odpływu w Polsce], Gospodarka wodna, Vol. 23, No. 8-9, 1963, p 357. Translated from Polish by Karol Jurasz (1968). TT 67-56057.

...PIHM (the National Institute for Hydrology and Meteorology) started with its research aimed at presenting the entirety of the runoff conditions existing in Poland. At present, work in progress is concerned with three important problems: characteristics of river discharge of the most important water-gage profiles, map of mean unit runoff in Poland, and flow regime of Polish rivers and fluctuations in mean periodical flow. (Author)

32. Stopa, Maria. Diurnal Course of Storm Occurrence in Poland [Przebieg dobowy występowania burz w Polsce], Warszawa, Polska Akad. Nauk, Instytut Geografii, Przegląd Geograficzny, Vol. 36, No. 1. 7 refs, 15 figs, 1964, pp 103-118. Translated from Polish by Karol Jurasz (1966). TT 65-50378.

...In view of the results of the investigations discussed, the diurnal course of mean storm frequency for Poland shows, in the 10-year period from 1946-1955, considerable regional discrepancies as to: differences in frequency in both studies, the beginning of intensified storm activity, its abrupt increase, its magnitude and number of peaks, the dates of the occurrence of such peaks, and the time intervals between successive peaks - as well as to the duration of the decrease in mean storm frequency depending on the hour of the day and the season, on ground cover, on hydrological system, etc. (Author)

33. Stopa, Maria. Thunderstorms in Poland [Burze w Polsce], Prace Geograficzne No. 34, 1962, pp 98-185. Translated from Polish by Jerzy Dlutek in 1966. TT 65-50312.

...Table 1 gives the mean monthly, seasonal, annual, and total number of days with thunderstorms (1946-55) for the entire period for 58 Polish stations. Table 2 gives the number of thunderstorms in Poland (1946-55), mean monthly, seasonal, annual, and total for entire period. Figs 2-13 are maps of Poland with the number of days and the number of thunderstorms Apr-Sep. Figs 14-21 are maps of Poland with the seasonal and annual number of days and number of thunderstorms. Fig 22 shows the ratio of hailstorms to the total number of thunderstorms per year (1946-55). Figs 23-25 are maps of Europe showing the number of days with thunderstorms for spring, summer, and the year. Table 4, for 61 stations, shows the earliest, latest and mean earliest and latest dates of occurrence, and maximum and mean potential period of thunderstorm. Figs 26-31 are Polish maps showing the earliest, latest and mean earliest and latest dates of thunderstorm occurrence, mean potential period, and the longest potential period of thunderstorms. Figs 32 and 33 are Polish maps which depict hours of occurrence of the first and mean daily maxima of thunderstorm frequency. Fig 34 is a Polish map of thunderstorm duration. Table 5 gives, for 29 stations, the duration of thunderstorms in Poland during 1946-55. Table 6 gives the numerical characteristics of thunderstorm regions. Fig 35 shows graphs of thunderstorm duration by particular regions. (Author)

34. Stopa, Maria. Meteorological Conditions Promoting the Development of Storms in Different Air Masses [Warunki meteorologiczne sprzyjające powstaniu burz w roznych masach powietrza], Przegląd Geofizyczny, Vol. 9(17), No. 1, 1964, pp 67-75. Translated from Polish by Witold Kulerski (1966). TT 65-50384.

...In work on the meteorological conditions promoting storms in different air masses, account was taken of all storms, near and distant ones alike. A day with storm was counted as a calendar 24-hour day with at least one storm, and in defining the number of storms, it was assumed that one should be separated from the other by at least one-half hour, and not one hour as is usual for precipitation, because the numbers obtained with the two criteria separately differed very little. (Author)

35. Stopa, Maria. Storm Occurrence Probability over Certain Geographical Regions of Poland [Prawdopodobienstwo wystepowania burz w niektorych regionach geograficznych Polski], Przegląd Geofizyczny, Warsaw, Vol. 11, No. 1, 1966, pp 45-55. Figs, refs, eqs. Translated from Polish by Malgorzata Widymaska (1966). TT 67-56105.

...Statistical analysis of thermal and humidity conditions observed prior to storms at 3 synoptic stations selected as representative for different geographic regions (highland, lowland, sea coast) has shown that: 1) Storm formation is conditioned by defined values of temperature and absolute humidity at the ground surface. 2) Maximum storm frequency varies in relation to the physical properties of the ground and geographic position. 3) "Storm effectivity" is greater in the cP air mass than in the mP air mass.

Probability of storm occurrence is higher in the southern areas of Poland.

Maximum distribution density of storm occurrence probability is observed over south Poland on days with maximum temperature 24-28°C, over north Poland at 20-24°C.

On days with maximum temperature below 12°C, the probability of storm occurrence is practically zero.

Probability of a storm day is (in central Poland) greater in the cP than in the mP air mass.

Highest probability of storm occurrence is in Jul in all cases observed. (Author)

36. Szczecinski, Czeslaw. Meteorology for All [Meteorologia dla wszystkich], 3rd ed. Warsaw, 1962, 249 p. Figs, photos, charts, tables, refs. Translation of the Polish monograph by Waldemar Bartoszewski, 1967. TT 65-50313.

...Atmospheric factors and phenomena determining weather; Composition and vertical distribution (structure) of the atmosphere, solar radiation and its effects, weight, pressure, and density of the air, humidity of the air, condensation of water vapor and its products, air currents; methods of weather forecasting; air and weather, air fronts, weather along fronts and frontal surfaces, synoptic method of weather forecasting, visual method of weather forecasting, gliding-flight aviation forecasting, weather, and climate are covered in this text. (Author)

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37. Szumiec, Maria. Time-space Temperature Distribution in the Lowest Air Layers over Water and Soil [Czasowo-przestrzenny rozkład temperatur nad wodą i glebą w najniższych warstwach powietrza], Przegląd Geofizyczny, Vol. 7(15), No. 3, 1962, pp 157-167. Translated from Polish by Maria Roser (1967). TT 65-50396.

...In considering the temperature formation in the lowest air layers, in particular during a shorter period of a dozen or so hours, the influence of advection may be disregarded. Consequently, there occurs the interchange of heat by absorption, radiation, condensation, or water evaporation, as well as by the turbulent heat exchange. According to observations, the amount of heat transferred in the first two processes is not great (except in particular instances) and the exchange of heat between air and surface principally occurs consequent of the turbulent air motion. (Author)

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38. Taraszkiewicz, Wladyslaw. Characteristics of Heavy Rains and Storms over Poland in the Years 1956-60 [Charakterystyka deszczów ulewnych i nawałnych na obszarze Polski w latach 1956-1960], Przegląd Geofizyczny, Warsaw, Vol. 10(18), Nos. 3-4, 1965, pp 299-306. Translated from Polish by Malgorzata Widomska (1967). TT 67-56108.

...This study is intended to show a characteristic of high intensity rainfalls based on their distribution over Poland in space and time, on pluviograph records and observer's reports on extraordinary precipitation during 1956-1960. Analytic evaluation of those data led to the following conclusions: 1) The period of occurrence of heavy rains (after W. Chomicz's classification) is in Mar - Oct, and torrential rains in May - Oct; 2) Most frequent occurrence of these rainfalls was observed in Jul, next in Jun and Aug; 3) Maximum frequency in the course of the day is noted between 14 and 18 hrs, minimum frequency from 4 to 10 hrs; 4) Duration of torrential rains did not exceed 3 hrs in 97% of the recorded cases (in the above-mentioned period only 1 storm lasted 17 hrs). The longest observed duration of heavy rainfall was 49 hrs and 40 min; 5) Most fortunate in respect to intense precipitation are the mountain regions; poorest in rainfall are the areas of Wielkopolska Lowland. (Author)

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39. Tomaszewska, Anna. Distribution of the Extreme Temperatures of Different Air Masses over Warsaw in 1951-1960 [Przebieg temperatur ekstremalnych w Warszawie w różnych masach powietrza w latach 1951-1960], Przegląd Geofizyczny, Vol. 9(17), No. 1, 1964, pp 53-66. Translated from Polish by Witold Kulerski, (1967). TT 65-50383

...The objective of the present work was investigation of the annual distribution of extreme temperatures of different air masses and thermal characteristics of these masses at ground level in the Warsaw region in 1951-60. The work is based on material from the archives of the State Hydrometeorological Institutes, namely: 1) records of

## 39. (cont)

extreme temperatures at the level of 2 m above ground at the meteorological station Warsaw-Okecie at 0600 GMT (minimum for the past 12 hours) and 1800 GMT (maximum for the past 12 hours); 2) weather maps prepared four times a day, i.e., at 0000, 0600, 1200, and 1800 GMT by the Department of Short-term Meteorological Prognoses of the State Hydrometeorological Institute. (Author)

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40. Tyczka, Sabina. Solar Climate of the Baltic Coast [Klimat solarny wybrzeza Baltyku], Przegląd Geofizyczny, Vol. 8(16), No. 4, 1963, pp 207-220. Translated from Polish by Maria Hoser (1967). TT 65-50393.

...Author discusses a comparison of sunshine on the Baltic Coast with that farther inland. Table 1 shows the relative duration of sunshine, monthly and annually, for 11 stations based on the period 1951-60. Table 2 shows the relative values of insolation expressed in 70 mean totals of radiation in relation to the theoretical maximum possible in an ideal Rayleigh's atmosphere for 5 cities. Table 3 shows monthly and annual mean solar radiation for Kolobrzeg under various conditions. Monthly values by hour of maximum values of direct solar radiation intensity are shown for Kolobrzeg based on the period Jul 1957-Jun 1960 along with the mean monthly sums of sunshine duration by hour (1951-60). (Author)

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41. Warakowski, Wojciech. Cloudiness in Poland [Zachmurzenie w Polsce], Przegląd Geofizyczny, Vol. 8(16), Nos. 1-2, 1963, pp 21-35. Translated from Polish by M. Widomska (1966). TT 65-50390.

...The object of the present study is to present a picture of general cloudiness in Poland based on a series of observations which, though shorter than those of previous works, are quite homogeneous and, therefore, fully comparable. Our material originates from 1950-1958 routine climatologic observations, made at 58 Polish synoptic stations at the standard hours 7 a.m., 1 p.m., 9 p.m. of local mean solar time. The quality of the material does not seem to give rise to any doubts. As regards the often discussed question of the number of observations per day, it is worth noting that comparison of cloudiness data computed from 3, 4, or more observations per day based on identical observational periods, has so far shown close approximation of the respective values. (Author)

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42. Warakowski, Wojciech and Wylezyska, Anna. Comparison of the Magnitude of Cloud Cover and the Occurrence Frequency of Particular Cloud Genera over Lublin Based on Observations made Three Times and Twenty-Four Times a Day [Porównanie wielkości zachmurzenia oraz częstotliwości występowania poszczególnych rodzajów chmur w Lublinie, na podstawie wyników 3- i 24-krotnych obserwacji na dobę], Przegląd Geofizyczny, Vol. 10(18), No. 3-4, 1965, pp 283-290. Translated from Polish by M. Widomska (1967). TT 67-56109.

...Observational records for 1955-1959 of the meteorological station Lublin of the State Inst. of Hydrology and Met. were used in this study. The data, obtained three times daily, represent climatological observations made regularly at 7, 13, and 21 h local time; those obtained 24 times a day were synoptic observations. The order of differences in magnitude of cloudiness and in cloud genera, computed on the basis of 3 and also of 24 observations/day, is very similar in the particular months and years. In respect of the general cloud cover, the results of 3 daily observations are more representative for the day hours than for the full day; whereas in respect of frequency of cloud genera, the situation seems to be inverse, the set of 3 observations being more representative for the 24 hr-period than for the day hours. (Author)

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43. Warakowski, Wojciech. Frequency of Occurrence of Particular Cloud Genera over Poland [O częstości występowania poszczególnych rodzajów chmur w Polsce], Przegląd Geofizyczny, Vol. 7(15), No. 3, 1962, pp 185-192. Translated from Polish by M. Widymaska (1967). TT 65-50397.

...Author discusses material and method, annual frequency of occurrence, and geographic distribution of cloud genera over Poland. Fig 1 shows the monthly frequency of different cloud types at 10 different Polish stations. Figs 2-6 show annual isorithms of frequency of occurrence of the various clouds. (DLB)

Rogoyski, Doman A. (Compiler). Glossary of Polish-English Meteorological Terms. Aerospace Technology Division, Library of Congress, Wash. D.C., Feb 1968. 301 p. AD 856818.

Recorded weather observations in Poland go back to 1490 with chronological notes kept by Marcin Biem, professor at Jagellonian University in Cracow. By 1655, instrumental observations were already recorded at a station in Warsaw. This station had been set up as one of the Florentine network of 11 stations, sponsored by the Grand Duke of Tuscany. Systematic observations were begun in Warsaw in 1776. However, as far as is known to this compiler, no comprehensive collection of Polish weather terms has ever been published. This bilingual glossary, prepared as a tool for technical translators, abstractors, and analysts, constitutes therefore a pilot project for Polish weather lexicography. It is patterned after the Glossary of Meteorology, published in 1959 by the American Meteorological Society, Boston, Mass. Some 80 per cent of the total of about 10,000 Polish terms were selected from current sources, and often serve to confirm continued usage of words listed in older references. English-language equivalents were checked against standard U.S. sources. In cases where no U.S. equivalents were found, entries were reviewed and edited by Mr. Edward D. Wolaki. It is hoped that subsequent issues will bring new contributions to the field of Polish weather lexicography.

The following appendices are included:

Appendix I: A tabulation (with map) of the world's climates according to the decimal classification developed by Wladyslaw Gorczyński, whose career includes several years of work in the United States.

Appendix II: A climatological classification (with map) for Poland and adjacent areas, developed by Prof. Eugeniusz Romer, and based on the results of half a century's studies. (Author)

*Poland*  
(1960-1969)

1. Bednarek, Antoni. O wpływie temperatury powietrza na kształtowanie temperatury gleby w warunkach ograniczonego dopływu energii promieniowania Słońca (na przykładzie boru iglastego Białowieckiego Parku Narodowego) [Atmospheric Temperature Effects on the formation of Soil Temperature under Conditions of Restricted Inflow of Solar Radiation Energy (on the Example of a Conifer Forest in Białowieża National Park)], *Przegląd Geofizyczny*, Warsaw, 11(4):251-260, 1966. Figs, tables, refs. English summary p 260. DAS M(05) P973a.

...On the basis of the results of 4-yr (1957-60) measurements of air temperatures at 5-cm soil depth in a conifer forest of Białowieża Natl Park, the author determined by statistical methods how, and to what extent, the soil temperatures in a forest depend on air temperatures. The relationship between soil temperature and air temperature in said forest can be expressed by the equation  $y = 2.73 + 0.694x$  and that the soil temperature is governed in 85% of the cases by the temperature of the air. The statistical analysis has shown that the regression lines of particular years do not significantly differ from one another. (Author)

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2. Błaszczyk, Bogumiła. Wyniki Dobowych Pomiarów Zanieczyszczeń Stałych Powietrza w Poznaniu [Results of Daily Measurements of Air Pollution at Poznań], *Przegląd Geofizyczny*, *Rocznik* 14(22), *Zeszyt* 3-4, 1969, pp 295-300. 5 figs, 2 tables. DAS M(05) P973a.

...This communication is a first attempt at treating the results of point measurements of atmospheric pollution at Poznań. In the research period 1964-1968 were observed similar values and similar typical frequency distributions and development patterns of contaminants concentration in the years 1964, 1965 and 1966, while in the year 1967, they were different. On ground of those differences the meteorological conditions of the particular years were analyzed. Principal attention was paid to atmospheric precipitation and a general dependence of the aforementioned concentrations on it was ascertained. Established also were characteristic relationships of pollution intensity with the occurrence frequency of precipitation in the summer halfyear, and with the amount of precipitation in the winter halfyear. (Author)

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3. Borkowski, Janusz. Wpływ warunków meteorologicznych na rozprzestrzenianie się zawieszin w atmosferze [Influence of Meteorological Conditions on Turbulent Diffusion], *Przegląd Geofizyczny*, Warsaw, 10(3/4):239-256, 1965. Figs, refs, numerous eqs. English summary p 256. DAS M(05) P973a1.

...The influence of meteorological conditions (i.e., thermal stratification and wind profile) on turbulent diffusion is a most fundamental and difficult problem. In this paper, analysis of the problem in the transfer-theory approach

## 3. (cont)

and statistical approach towards turbulent diffusion is presented and criticized. On the base of the similarity theory, a new formula for wind profile in a stable surface layer is obtained and the use of the similarity theory for describing turbulent diffusion is discussed. A simple and convenient method for the estimation of pollution from the ground and elevated sources is presented. (Author)

4. Boryczka, Jerzy. Parametry określające intensywność turbulentnej wymiany powietrza i ich zależność od warunków meteorologicznych i charakteru podłoża [Parameters Defining the Intensity of Turbulent Air Exchanges and their Dependence on Meteorological Conditions on the Ground Surface], Warsaw, Uniwersytet. Instytut Geograficzny, Katedra Klimatologii, Prace i Studia, No. 3:90-127, 1968. Tables, refs, eqs. English summary pp 126-127. DAS M(05) W295tr.

...After reviewing the literature, the author lists the various methods and equations defining the intensity of turbulent air exchange. Particular attention is given to the diurnal variations in turbulent air exchange and to the dependence of turbulent air exchanged on altitude and on the character of the underlying surface. He discusses the following: 1) the mechanism of turbulent transport of various physical values in the atmosphere, including the definition of parameters characterizing the intensity of turbulent exchange and the general equations of turbulent diffusion; 2) mean wind velocity and its dependence on altitude (including the observed profile of mean wind velocity) and on conditions of air equilibrium; 3) pulsation of wind velocity and direction, including wind-velocity pulsating profiles, wind gustiness, mean path of turbulent air mixing, profile of mean path of turbulent air mixing and its dependence on atmospheric stratification, and fluctuations of wind direction and their dependence on thermal stratification; 4) coefficients of turbulent exchange of air velocity, heat, and air masses and their identification including observation profiles of turbulent exchange of wind speed, atmospheric heat, and of air masses, balance of atmospheric turbulent energy, and generalization of the von Karman constant and its dependence on altitude. The results of measurements obtained from the literature refer to atmospheric strata of different thicknesses, from several centimeters to approx 300 m. (Author)

5. Budziszewska, Elzbieta. Przestrzenny rozkład sum opadowych deszczu ciągłego na terenie Wielkiej Warszawy w okresie od marca do listopada 1960 g [Spatial Distribution of Continuous Precipitation Amounts in the Greater Warsaw Area, Mar to Nov 1960], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 91:3-18, 1967. Figs, maps, tables, refs. Polish summary p 3; Russian and English summaries pp 17-18. DAS M(055) P762p.

...This paper, based on the measurements of the station network of the experimental field in the greater Warsaw area, is an attempt to find a relation between the form of the spatial distribution of precipitation amount and the type of cloudiness. The types of cloudiness were differentiated after tropospheric instability and potential possibility of development of clouds with vertical structure. Precipitation exclusively continuous was a very rare phenomenon. Generally, the convection cells are placed in the system of stratus-fractus clouds, producing short lasting, but abundant precipitation, characterizing the precipitation distribution. The repetition of occurrence of greater precipitation amounts was observed, associated with the air descent from the same sectors over the same or nearly similar areas. (Author)



6. Budziszewska, Elzbieta. Ze studiow nad rozkladem opadów atmosferycznych na obszarze Wielkiej Warszawy, I [Studies on Precipitation Distribution in the Greater Warsaw Area, Pt. 1], *Przegląd Geofizyczny*, Warsaw, 11(4):224-245, 1966. Figs, charts, refs. English summary p 245. DAS M(05) P973a.

...Deals with the first part of a series of investigations on the distribution of atmospheric precipitation in Greater Warsaw as the background for a study of distribution of precipitation over the central Polish region. The object of these studies is to gain an insight into the distribution of precipitation depths in areas with different physiographic and thermal conditions in the case of inflow of air masses from different directions and at different velocities. Precipitation of June 28, 1964 is examined in the first section of the paper, particularly, the distribution of precipitation in the case of air masses flowing in from different directions varying with height - from the north in the lower and low troposphere and from the west in the middle troposphere. (Author)

7. Budziszewska, Elzbieta. Ze studiow nad rozkladem opadów atmosferycznych nad obszarem Wielkiej Warszawy, II. Rozkład opadów nad Wielką Warszawą w roku 1960 w zależności od kierunku wiatrów w średniej troposferze [Studies on the Distribution of Precipitation in Greater Warsaw, Pt 2. Distribution of Rainfall in the Year 1960 According to Wind Direction in the Middle Troposphere] *Przegląd Geofizyczny*, Warsaw, 12(3/4):273-292, 1967. Figs, charts, tables, refs. English summary p 292. DAS M(05) P973a.

...The object was to determine the recurrence of atmospheric precipitation over certain parts of Greater Warsaw for airflow in the middle troposphere from the western sector (220°-320°). Analyses of 65 maps of diurnal precipitation-depth distributions and of 5 maps of monthly total-precipitation distribution for May-Sep 1960 show that in the warm half-year, precipitation at the time of air inflow from the western sectors predominates, and "western" rainfall is considerable. The spatial distribution of precipitation depth on the examined area is not homogenous. The amount and character of distribution of the monthly and seasonal precipitation sums are influenced by the distribution of character of the diurnal precipitation sums. (Author)

8. Chelchowski, Włodzimierz. Periode der episodischen Schwüle in Polen 1951-1960 [Period of Episodic Sultriness in Poland in 1951-1960] *Zeitschrift für Meteorologie*, Berlin, 16(3/4):97-103, Mar/Apr 1962. 4 figs, 2 tables, 5 refs. German and English summaries p 97. DAS M(05) Z48.

German

...Using the Scharlau criterion, the sultriness conditions (duration and frequency) in Poland are investigated. Local and regional variations with time and altitude and the role of synoptic situations are discussed. (Author)

9. Chelchowski, Włodzimierz. Tropennächte nördlich der Sudeten und Karpaten [Tropical Nights North of the Sudetic and Carpathian Mountains] *Wetter und Leben*, Vienna, 20(7/8):152-157, 1968. Figs, tables, refs. German and English summaries p 152. DAS M86W 542.

German

...A tropical night is defined as a night with air temperature not lower than 20°C (68°F). The frequency of such nights and the values of the lowest temperatures of the warmest nights for 80 stations in Poland for 1947-60 are presented. Most tropical nights occurred in midsummer under favorable topographical conditions at slope stations, on mountain peaks, and in residential districts of

## 9. (cont)

large cities. In the free atmosphere, the 20°C layer was found as high as 1800 m sea level. Tropical nights also occurred along the Baltic coast and in mountains up to 1200 m during invasions of tropical air or during heat waves of continental origin. (ILD)

10. Chomicz, Kazimierz and Klapa, Maria. Badania sniegu na Hali Gasienicowej w 1962 roku [Snow Research in Hala Gasienicowa in 1962], Poland, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 87:45-57, issued 1966. Figs, tables. Polish summary p 47; Russian and English summaries p 57. DAS M(055)P 762p.

...Snow research in Hala Gasienicowa was conducted in a small field in the lower part of the valley below the meteorological station. The present research program embraced measurements of physical properties of snow, plus the investigations in the layer of air above the snow cover at the 5-, 50-, and 100-cm height. Since the data from the levels 0.5 m and 1.0 m differed little, the data for the level 1.0 m are omitted. A new feature begun in 1962 deals with the morphology of snow crystals and grains. In this work, there are presented 16 photographs, each classified according to the international scheme and to the classification proposed by Nakaya. (Author)

11. Chomicz, Kazimierz. De l'estimation de la quantite des precipitations tombee sur de petits bassins versants [Estimating the Precipitation Amounts Falling on a Small Catchment Basin] International Association of Scientific Hydrology, Bulletin, 10(4):5-12, Dec 1965. Figs. DAS M(06) I611gb.

French

...The difficulty of properly determining precipitation in the mountains is pointed out. Data for Tatra are presented in tabular and graphical form to show that the depth of precipitation is not determined only by the location of the station. The author states that depth of precipitation is a function of the following factors: elevation above sea level, exposure, wind velocity, and losses due to evaporation and to the wetting of the gage; the last of these can be neglected. The effects of the other factors are discussed and shown graphically for the Tatra region. The author states that, for proper determination of precipitated water on the catchment of a river, the station network must take into account all the peculiarities of the terrain and the data must be thoroughly analyzed before they are used in estimating the precipitated water. A station can be considered suitable for analysis if the ratio of its monthly precipitation to that of the selected base station is approximately constant. For storage gages (totalizers) seasonal values can be used. Values of the summer and winter pluviometric coefficients of 12 Polish storage gages in the Tatra region and their localization indices are shown graphically. (DBK)

12. Chomicz, Kazimierz. Essai d'une classification des avalanches [Attempt at a Classification of Avalanches], International Association of Scientific Hydrology, Publication No. 69 408-409, 1966. (International Symposium on Scientific Aspects of Snow and Ice Avalanches, Davos, April 1965, Reports and Discussions.) DAS M(06) I611g.

French

## 12. (cont)

...Avalanches are divided into 5 classes according to the type of snow and are further subdivided according to the mode of descent and detachment, a place of rupture, by the quantity of snow, and by causes of detachment. It is pointed out that the suggested classification is based solely on data for the Tatra region and must therefore be revised and made more complete. (DBK)

13. Chomicz, Kazimierz. Hó-és lavinakutatás a Tatraban [Snow and Avalanche Research in the Tatra Mountains] Idojaras, Budapest, 66(3):138-146, May/Jun 1962. 8 figs, 4 photos. Russian and German summaries p 138. DAS M(05) I21.

**Hungarian**

...In Poland in the western part of the Sudeten region, and particularly, in the Tatra Mts., studies on snow and avalanches are being carried out. These include not only the customary measurements of height of snow cover, density, and total water content but also the physical properties of snow such as temperature, crystalline form, crystal size, porosity, firmness, stratification, and spatial and temporal variability of these properties. From a description of the physical properties and the weather conditions preceding the avalanches which occurred in March 1960 in the Tatra Mts., it is concluded that these investigations have attained, in Poland, a high level and are associated with practical requirements. (Author)

14. Chomicz, Kazimierz. Les avalanches dans les montagnes de Tatra: methodes de mesures [Avalanches in the Tatra Mts.: Methods of Measurements] International Assoc. of the Scientific Hydrology, Publication No. 69:294-303, 1966. Figs, map (Fold.), English and French summaries p 294. (International Symposium on Scientific Aspects of Snow and Ice Avalanches, Davos, Apr 1965, Reports and Discussions). DAS M(06) I611g.

**French**

...Contains a review of instruments and methods applied in the investigations of snow and avalanches in Poland. An important part of the work is the brief data concerning the genesis and course of occurring avalanche phenomena in the Tatra Mts. and hydrologic characteristics of avalanches. To the work has been attached a detailed chart of avalanche danger in the Tatra Mts. on the basis of the observations from 1959-64. (Author)

15. Chomicz, Kazimierz. Snieg i lawiny w Tatrach w roku 1959 [Snow and Avalanches in the Tatra Mts. in 1959], Poland, Państwowy Instytut Hydrologiczno-Meteorologicznego, Prace, No. 58, 1960. 21 p. 26 figs, 4 folded maps, 9 tables. DAS M(055) P762pc no. 58. (For years 1960, 1961, 1962 see Prace nos. 71-1962, no. 75-1964, no. 87-1966)

...These publications describe the research on the physical properties of snow and avalanches in the Tatra Mountains started in 1959 and are given each year to 1962 and will continue in the future. The structure, density, water equivalent of the snow cover, the vertical temperature distribution, the possibilities of internal frost favoring avalanches, stratification, and cohesion indexes of snow were studied, tabulated, and mapped. In the 1959 issue, the organization of the survey, and the instruments used were described. The avalanches which occurred are listed in each publication. (VJC)

16. Ciepielowski, Andrzej and Dabokowski, Ludwik. Charakterystyka hydrologiczna skutkow katastrofalnego "obserwania chmury" nad Rzeszowskiem w dniu 26 kwietnia 1966 [Hydrologic Characteristics of the Effects of a Destructive Cloudburst over Rzeszow Region on April 26, 1966], Przegląd Geofizyczny, Warsaw, 13(3):261-272, 1968. Figs, table, refs. English summary pp 271-272. DAS M(05) P973a.

...The runoff produced by the cloudburst of Apr 26, 1966 in the Rzeszow district is analyzed. The pattern of isohyetal lines shows that the precipitation was not distributed uniformly; there were several centers of maximum rainfall. Local rainfall intensities varied considerably; they ranged from intensities of 0.555 mm/min to 0.37 mm/min. The maximum runoff varied between 0.164 cu m/sec/sq km to 17.7 cu m/sec/sq km in different basins. (ILD)

17. Czernerda, Anna. Charakterystyka ekstremalnych temperatur powietrza w Jaworkach kolo Szczawicy [Characteristics of Extreme Air Temperatures at Jaworki near Szczawnica], Roczniki Nauk Rolniczych, Ser. D. Monografie, Warsaw, 118:125-134, 1966. Figs, tables, refs. Polish, Russian, and English summaries pp 133-234. DLC S13.R713.

...Observations of extreme air temperature at 1.5 m altitude were taken in Jaworki near Szczawnica from November 1956 to September 1958. Observations were made at 8 points situated differently in relation to the morphology of the area, at various heights above sea level, and on slopes with various exposures. Minimum air temperatures in the examined area were noted at point three located in the Grajcarek River Valley. Mean annual minimum air temperature increased with increasing height of a given point above the valley. Local temperature inversions are characteristic for the given area. From Nov 1956 to Sep 1958, 348 days with inversions were noted, i.e. on the average of 16 days a month. (PAK)

18. Dzerdzeevskii, B.L. Klimatologia v Pol'skoi narodnoi respublike [Climatology in the Polish People's Republic], Akademia Nauk SSSR, Izvestia, Ser. Geograficheskaya, No. 6:102-112, Nov/Dec 1966. Figs, refs. DAS P Col.

...This is a somewhat extended report on the author's 1966(?) 10-day trip at the invitation of the Inst. of Geography of the Polish Acad. of Sc. during which he visited the Institutes of Geography and the Univ. in Warsaw, the Hydromet. Inst. (Hydromet Service of the Polish National Republic), meteorological and climatological departments and stations of Wroclaw Univ., and its experimental station at Svoetz and its mountain station in Silesia. Descriptions of the activities of the several institutions include organization charts of the Institutes of Geography and of Hydrometeorology; and photographs of an installation for heat exchange measurements and of the meteorological stations of Wroclaw Univ. and of the agricultural at Svoetz. The review of the work of Polish climatologists includes a map of albedo of the surface of the experimental area at Voitseshovo from J. Paszynski's (1964) paper. It is concluded that the climatological work in Poland is done thoughtfully, energetically, and scrupulously. (DBK)

Russian

19. Figula, Kazimierz. Badania nad gospodarka wodna ziewini gorskich zalesionych i nie zalesionych, Czesc I, Stosunki opadowe w gornej czesdi dorzecza Grajcarek [Investigations of Water Economy in Mountain Catchments, Forested and Unforested, Pt. 1, Precipitation in the Upper Part of the Grajcarek Catchment Area], Roczniki Nauk Rolniczych, Ser. D, Monografie, Warsaw, 118:11-50, 1966. Figs, tables, refs. eqs. Polish, Russian, and English summaries pp 46-50. DLC S13.R713.

## 19. (cont)

...Results are presented of the investigation of precipitation in experimental catchment basins of the Wda and Biala rivers and 2 streams, Skalski and Kaniowski located in the upper catchment basin of the Grajcarek, a tributary of the Dunajec River. The investigations covered an 8-yr period (1953/54-1960/61), during 5 years of which, investigations of precipitation distribution within a dense network of ombrometric points, were conducted. Several short observations on the accuracy of precipitation measurements using Hellmann's ombrometer in mountainous terrain were made. It was found that, in the 8-yr period, exceptionally dry, medium humid, and humid years occurred. The monthly precipitation distribution was characterized by a prevalence of summer rainfall (Jun-Aug) constituting almost half (49.5%) of yearly precipitation; increasing frequency of precipitation of great intensity parallels an increase of height above sea level. Rains of 1 mm/min and more were recorded 1-2 times a year, with a high frequency of droughts in autumn (40%) and a comparatively small snow-cover coefficient (21%). (Author)

20. Haman, Krzysztof and Niewiadomski, Michal. Preliminary Attempt at Hail Forecasting in Central Poland. Acta Geophysica Polonica, Warsaw, 15(1):29-38, 1967. Figs, table, refs. English summary p 29; Polish summary p 38. DAS P Col.

**English**

...A new operational method of hail forecasting, based on the theory outlined by Haman is presented here and empirically corrected by means of climatological data from central Poland. Results are commented on, and further improvements of the method are proposed. (Author)

21. Hanik, Jan. Rozwoj obserwacji meteorologicznych na terenie Zakopanego i jego okolic do 1919 roku (w setna rocznice zalozenia pierwszej stacji meteorologicznej w Zakopanem) [Development of Meteorological Observations in the Area of Zakopane and Its Neighborhood until 1919 (in commemoration of 100 years of the first Meteorological Station at Zakopane)], Przegląd Geofizyczny, Warsaw, 12(2): 131-144, 1967. DAS M(05) P973a.

...July 12, 1967, was the 100th anniversary of the founding of a meteorological station in Zakopane. Other less important stations built later are all enumerated and described. A more modern station started operation in Zakopane in July 1911. A mountain station was inaugurated on Hala Gasienicowa in Jan 1913 and operated until 1916. The results of meteorological observation in Zakopane were forwarded to the Astronomical Obsy in Cracow, to Davos (Switzerland), and many other stations. Weather data were also provided for the use of tourists and to medical centers, because the climate of Zakopane proved to be useful for curing tuberculosis. (SN)

22. Hess, Mieczyslaw. O stosunkach termicznych Krakowa, 1780-1963 [Thermal Conditions of Cracow, 1780-1963], Przegląd Geofizyczny, Warsaw, 12(3/4):311-330, 1967. Figs, charts, refs. English summary pp 329-330. DAS M(05) P973a.

...The recurrence of various mean monthly and annual air temperature values in Cracow is examined from tabulated 100-year data (1844-1963). The calculated temperature differences between contiguous months may indicate the probability that Feb is likely to be cooler than Jan, and that, once in 100 years, the difference should be 11°C. Also, periods of oceanic and continental climates

## 22. (cont)

may be distinguished. An analysis of several decades indicates the relationship of the weather to the solar spot cycle. In general, the forecast for 1961-1970 is for longer winters and shorter summers, cooler falls and warmer springs -- a situation inverse to 1951-1960. (SN)

23. Hess, Mieczyslaw. O wpływie ekspozycji terenu na klimat w Polsce Południowej [Effect of Slope Exposure on the Climate in Southern Poland], Przegląd Geofizyczny, Warsaw, 11(3):153-170, 1966. Figs, tables, (1 fold), refs. English summary pp 169-170. DAS M(05) P973a.

...An attempt was made to determine the quantitative differences between the mesoclimates of south- and north-facing slopes based on the highly differentiated macroclimatic conditions in southern Poland. For this purpose annual records (for 1954-1958) from 15 pairs of climatological stations located in the vertical profile of southern Poland at altitudes from between 300 and 1400 m were used. (Author)

24. Hess, Mieczyslaw. O mezoklimacie wypukłych i wklęsłych form terenowych w Polsce Południowej [Mesoclimate of Convex and Concave Landforms in South Poland], Przegląd Geofizyczny, Warsaw, 11(1):23-36, 1966. Figs, tables (2 fold), refs. English summary p 35. DAS M(05) P973a.

...An attempt is made at a quantitative determination of mesoclimatic differentiation of convex and concave landforms in south Poland as the background of the greatly differentiated macroclimatic conditions of that area. To this end, the annual records for the period 1954-1958 of 8 pairs of climatological stations located in the vertical profile of south Poland at 200 to 1400 m a.s.l. were used. The author found that there are direct linear correlations between the particular climatic elements and indices of convex and concave landforms, and that the magnitude of the differences between convex and concave landforms depends on the general thermal background. This distinct relationship of the magnitude of mesoclimatic differences between convex and concave landforms with the mesoclimatic conditions can be expressed in the form of functional relations. The mesoclimate of any convex or concave landform of south Poland can be determined with considerable accuracy on the basis of the mean annual temperature. The author considers this to be a real and complex climatic phenomenon. (Author)

25. Hess, Mieczyslaw. O vertikal'nykh klimaticheskikh poiasakh v Pol'skikh Karpatakh [Vertical Climatic Belts in the Polish Carpathians], (Conference on Meteorology of the Carpathian Mts) Konferencija za Karpatsku Meteorologiju, 3rd, Belgrade, May 27-30, 1965. Uticaј Karpata na vreme. Belgrade 1966, pp 135-170. Figs, tables (1 fold), refs. Russian and English summaries pp 135-136. DLC QC989.C9m38.

Russian

...Analyzing the variations in particular climatic elements due to the change in the elevation, exposure, and form of the terrain, the author obtained a relatively complete description of the climate in the Polish Carpathians. To this end, data from 89 climatological stations have been used for the 10-yr period, 1952-1961. The stations are situated along the vertical profile of the West Carpathians, from Cracow, at the height of 200 m, to Lomnica, at 2635 m. It was

## 25. (cont)

seen that particular climatic elements undergo gradual changes with the increase in elevation, that, in particular regions, this results in qualitative changes in the climatic conditions. In each classification of climate, the author considers, a basic parameter should be present reflecting the effects of many climatic elements and factors. (Author)

## 26.

Hess, Mieczyslaw. Versuch der Unterscheidung und Charakteristik der klimatischen Höhenstufen am Beispiel der polnischen Westkarpaten [Differentiation and Characteristics of Altitudinal Climatological Zones, Taking the Polish West Carpathians as an Example], Petermanns Geographische Mitteilungen, Gotha, III (1):1-12, 1967. Figs, refs. English summary p 1. DAS P Col.

German

...The author examines by means of diagrams, the relations which are shown by the single climatic elements at a different altitude above sea level, exposure, and geomorphology in the western Carpathian Mts of Poland. He points out that the annual mean temperature, is the best one to use as an indicator of a climatically-conditioned subdivision of the mountains, after geographical zones. The author finds 6 climatic zones for the western Carpathian Mts: cold (-4 to -2°C), moderately cold (-2 to 0°C), very cool (0 to 2°C), cool (+2 to +4°C), moderately cool (+4 to +6°C) and moderately warm (+6 to +8°C). As the author states, the limits of these climatic zones generally correspond to those of the zones of vegetation. (Author)

## 27.

Janiszewski, Feliks. Występowanie mgły w Warszawie [Fog Occurrence in Warsaw], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 91:29-39, 1967. Figs, tables, refs. Polish summary p 29; Russian and English summaries p 38. DAS M(055) P762p no. 91.

...Presents daily and annual variation of fog occurrence at Warsaw-Okecie for 1936-1938, 1940-1943 and 1948-1962. The materials concerning the first 2 periods have been used only for the computations concerning the number of days with fog. Many fogs of short duration were observed, and about 9% of fog cases lasted less than 30 min, while in many of these cases, fog lasted only a few minutes. The cases of fog lasting for 2-4 hrs were the most frequent (23.1%). The maximum time of duration was about 68 hrs (14-17 November 1948). The months from October to February are characterized by a great number of foggy days, with a mean maximum in December, while the months from April to August by a small number of foggy days with a mean minimum in July, March and September are transitory months. Fogs were not observed at all in some parts of the day from March to October, the maximum of this part of day occurred in July (from 08 to 24 hrs). (Author)

## 28.

Jansz, Andrzej and Mlynarczyk, Boleslaw. Wpływ zadrgewien srodpolnych na kształtowanie się pokrywy śnieżnej pol przyległych [Influence of Windbreaks upon the Forming of Snow Cover on Adjacent Fields] Roczniki Nauk Rolniczych, Ser. A. Roslinna, Warsaw, 90(4):475-497, 1966. Figs, tables, refs. Russian and English summaries pp 496-497. DLC SB13.R6.

## 28. (cont)

...During the winter of 1962-63, investigations were conducted near Turwia on the thickness and distribution of snow cover in the vicinity of different types of tree plantings. It was established that tree planting influences the increase of snow cover thickness as compared to areas without trees. More dense afforestation causes an accumulation of a greater amount of snow in their vicinity but the range of its action is smaller. Open tree plantings lead to a more uniform distribution of snow cover. The thickest and the most uniform snow cover appears on areas located between 2 adjacent tree plantings being greater than on an open area by over 60%. The location of tree plantings perpendicular to the direction of prevailing winds increases snow accumulation; while a parallel location does not. (Author)

29. Jaskowska, Anna. Effect of Fog on the Elements of Atmospheric Electricity at Swider. Acta Geophysica Polonica, Warsaw, 15(3):209-216, 1967. Figs, refs. English summary p 209; Polish summary p 216. DAS P Col.

English

...The measurements of electrical conductivity, the number of condensation nuclei, meteorological observations, and continuous recording of potential gradient of the air carried out at Swider Obsy from Jun 1, 1957 to Dec 31, 1962 are discussed. Air conductivity measurements made during fog gave values most often approximating 0.3-0.6 of the monthly mean values. This decrease was most probably caused by the presence of fog droplets and -- to a minor extent -- by increase of air pollution resulting from weak winds. The concentration of condensation nuclei in fog was slightly larger than without it; the main reason for this phenomenon seems to be due to the fact that during fog the winds with low velocity were mostly observed. The frequent occurrence of lower values of potential gradient during fog as compared with those in fine weather, and especially its negative values, may suggest the occurrence of large space charge during fog. (Author)

30. Juczmarzka, Lutoslaw and Paszynski, Janusz. Rozklad promieniowania calkowitego na obszarze Polski [Distribution of Global Radiation in Poland], Przegląd Geograficzny, Warsaw, 36(4):691-702, 1964 (issued 1965?). Figs, refs, eqs. Russian and English summaries p 702. DAS P Col.

...Average monthly values of global radiation (total short wave radiation) for the period 1951-1960 have been computed from recordings of sunshine duration made at 60 meteorological stations in Poland. The table contains the values obtained. The distribution of seasonal and annual totals of the global radiation is shown by maps. The influence of various factors, such as the latitude, the atmospheric circulation, and the local turbidity of the atmosphere due to the air pollution has been analyzed. The amounts of global radiation generally increase southward in autumn and in winter while eastward in spring and summer. (Author)

31. Juda, Jan and Budzinski, K. Atmospheric Pollution, - Poland. - Translated from Zanieczyszczenia Atmosfery, published by Wydawnictwa Naukowo-Techniczne, Warsaw pp 1-256, 1961. Dept. of Commerce, Office of Technical Services, JPRS, Wash., D.C., 31 Mar 1963, 261 p. Figs, tables, refs. JPRS 18,455.

English

...This book contains information about the sources, dispersion, and investigation of atmospheric pollutants. Among the many items covered are classification



## 31. (cont)

of pollutants, damage caused by pollution influence of meteorological conditions on the dispersion of pollutants, testing and sampling procedures, pollutant emission, dustfall, concentration of particulate matter, and gaseous air pollutants. Many tables are included listing dustfall, pollutant sources, dust concentration data (annual average), etc., for stations in Poland. A graph of temperature differences at 2 and 34 meters for Potsdam, the average annual frequency of winds by direction and speed (m/second) etc., are included. Tabular data on raindrop diameters, dust particle coefficients, pollutant concentration, and dustfall versus wind velocity by elevation are among the many tables. (ALS)

32. Kaczmarek, Zdzislaw. Aktualne zadania sluzby hydrologiczno-meteorologicznej [Current Tasks of the Polish Hydrological-Meteorological Service], Poland, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomosci Sluzby Hydrologicznej i Meteorologicznej, (n.s.), 1(1):7-16, 1965. DLC QC989P7W27.

...The present and future work of the Polish Hydrological and Meteorological Inst. is outlined. The Institute was established 20 years ago and it is expected to be modernized and equipped with up-to-date instrumentation, including radar and installations for receiving satellite and aircraft communications. The hydrological and meteorological research in 1965-1970 will consist of a general study of the climate of Poland and the Baltic, regional agricultural conditions, general characteristics of water balance, and aeroclimatic conditions. After 1970 the research should concentrate on long period changes and more detailed analyses. Special attention will be paid to forecasting methods, which are considered the most important work of the Institute. The forecast will be supplied to civil aviation, to sailing and fishing boats, to farmers and foresters; flood warnings will also be issued. Some difficulties experienced in the scarcity of adequately trained personnel and the improvement of the situation are discussed. (SN)

33. Kaczmarek, Zdzislaw. Dekada hydrologiczna w Polsce [The Hydrological Decade in Poland], Poland, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomosci Sluzby Hydrologicznej i Meteorologicznej, (n.s.), 1(2):3-9, 1965. DLC QC989.P7W27.

...Polish participation in the International Hydrological Decade (1965-1974) is outlined. Polish scientific stations, supposed to participate in the project, will consist of 30 hydrometric stations surveying the state of water, freezing, and overgrowing of water by vegetation; 60 stations measuring the daily amount of precipitation, snow cover, water content in snow, and meteorological elements associated with precipitation; 5 stations studying evaporation of water, soil humidity, the vertical profile of meteorological elements, and radiation. All these projects will be surveyed by the State Inst. of Hydrol. and Met. who will combine the problems of measuring, forecasting, and research. (SN)

34. Kaczmarek, Zdzislaw and Mikulski, Zdzislaw. Perspektywy rozwoju hydrologii w Polsce [Prospects of Scientific Advancement of Hydrology in Poland], Poland, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomosci Sluzby Hydrologicznej i Meteorologicznej, 3(3/4):7-18, 1967. Russian and English summaries pp 16-18. DLC QC989P7W27.

## 34. (cont)

...Between 1925-1980, there will have been completed the investigations for describing the hydrological conditions of Poland (hydrographic maps and atlas) and the observational network will have been expanded, particularly to investigate the variations of the hydrological balance. From 1980-1985, there will be available the results of theoretical and experimental studies enabling an explanation of the fundamental hydrological processes in homogeneous areas, such as the problems of evaporation from land and infiltration. From 1975-1980, there will be completed the fundamental studies on the stochastic properties of river flow and on the application of the theory of these processes to optimum management of water resources with the aid of water reservoirs. (ILD)

35. Kaczorowska, Zofia. Opady Wielkiej Warszawy i jej okolic w okresie 1956-1960 [Precipitation over Greater Warsaw and Its Surroundings, 1956-1960], Przegląd Geofizyczny, Warsaw, 12(3/4):251-271, 1967. Figs, tables, refs. English summary pp 270-271. DAS M(05) P973a.

...On the basis of the data of the network of rainfall stations of the State Inst. of Hydrol. and Met., the formation of the annual mean precipitation sums with reference to ground morphology, forest complexes, and built-up areas was studied. The distribution of precipitation sums was investigated for the wettest (1960) and the driest (1959) year, and for the months of July 1960, June 1959, and Oct 1959. Analysis of distribution over the area of Greater Warsaw has shown that the data of a single station cannot adequately characterize precipitation conditions for the whole urban area. The mean precipitation sums for 3 periods (1951-60, 1956-60, and 1956-65) of 4 stations were examined. (Author)

36. Kaczorowska, Zofia. Temperatury gruntu na Pojezierzu Mazurskim w okresie 1960-1964 [Soil Temperature in the Masurian Lake Region during 1960-1964], Warsaw, Uniwersytet. Instytut Geograficzny, Katedra Klimatologii, Prace i Studia, No. 3:4-13, 1968. Figs (fold), tables, (2 fold), refs. English summary pp 11-13. DAS M(05) W295tr.

...The graphs of mean decade soil temperatures for 8 stations in the Olsztyn and Białystok districts at depths of 5, 10, 20, and 50 cm are similar. In the warm part of the year, the highest values are at the 5-cm depth; the values decrease with increasing depth. In the cold part of the year, the highest temperatures are at the 50-cm depth; the temperatures decrease gradually towards the surface. The temperature stratification reverses itself in March-April and in September. At the various stations, the mean annual temperatures at all depths are similar with the differences being in the order of 0.1 to 0.3°C. The highest temperatures (8.1 to 8.5°C) are in slightly clayey soils and in sandy soils. The soil temperature regime of different soil types and the diurnal soil temperature regimes are examined. Extensive data are tabulated. (Author)

37. Kaczorowska, Zofia. Wyniki badań w 1961 roku [Results of Observations in 1961], Warsaw. Univ. Instytut Geograficzny. Katedra Klimatologii, Prace i Studia, No. 2:15-31, 1967. Figs, tables. DAS M(05) W295tr.

...During July and August 1961, two special observing stations were set up by the Dept of Climatology of Warsaw Univ on Szeroki Island and in Kozuchy. Additional thermometer screens were erected at nearby supplementary stations. This

## 37. (cont)

note presents the data obtained and compares it with similar data for the 10-yr period, 1951-1960. The local isotherm pattern shows the effects of the lake on the air temperature distribution, having a warming influence by night and a cooling influence by day. The summer of 1961 proved to be cool, humid, and rainy. Four particular days were chosen for closer study; the warmest day, the coolest day, a day following the passage of an occluded front, and one following the passing of a warm front. The microclimatic variations of temperature and humidity on each of these days are traced in detail. (Author)

## 38.

Kluge, Mieczysław and Krawczyk, Barbara. Zmienność albedo z roku na rok na przykładzie Wojcieszowa Górnego [Variability in Albedo Values from Year to Year with Wojcieszów Górny as Example], *Przegląd Geograficzny*, Warsaw, 38(4):709-713, 1966. Fig, tables. Polish summary p 709; Russian and English summaries p 713. DAS P Col.

...The purpose of the present paper is to verify the supposition that the mean weighted-albedo value, calculated at a definite stage of the vegetative period for tilled-land surfaces, cultivated differently from year to year, may be valid for more than 1 yr. The authors compared the results obtained from field studies made near Wojcieszów Górny in 1962 (*Przegląd Geograficzny*, 36(1):131-141, 1964) with the results of similar studies made in 1964 for the same land surface. The mean weighted-albedo value of 1964 was obtained from a changed pattern of field sizes, sown with different products due to crop rotation, and with the appearance of the various crops showing certain minor differences. The value determined was 20.0%, differing but little from the 1962 figure (1962 - 20.7%, 1964 - 20.0%). The comparison of the 2 maps of the same land area prepared in 2 different years, and of the 2 mean weighted-albedo values for these 2 years seem to justify the assumption put forward by the authors. (Author)

## 39.

Kołodziej, Józef. Opady atmosferyczne w Polsce w latach 1948-1963 w porównaniu ze średnimi z okresu 1891-1930 [Atmospheric Precipitation in Poland in the Years 1948-1963 as Compared with the Means for the Period 1891-1930], *Przegląd Geofizyczny*, Warsaw, 10(3/4):291-298, 1965. Figs, tables, refs. English summary pp 297-298. DAS M(05) P973a V10:1965.

...The precipitation data were taken from W. WISZNIEWSKI's "Atlas of Atmospheric Precipitation over Poland" and from the "Monthly Weather Surveys" for the years 1948-1963. Mean precipitation for the year, the vegetative period (IV-X) and for each month of the years 1948-1963 was computed and compared with the respective data for 1891-1930, taking the latter as 100%. Isorithms of the deviations from 1891-1930 precipitation means were drawn for the year, the vegetative period, and the months of May and July. The annual means showed that in the recent 16-yr period the major part of the country has received less precipitation. A striking decline in precipitation amounts (over 90%) was noted for the eastern part of Lublin Highland, Roztocze, the Sandomierz depression, the eastern part of the Silesian Lowland, in the environs of Łódź and Kalisz and also in the Wolin and Uznam Islands region. An increase in precipitation amounts was noted for the northern part and over insular spots of the southern part of Poland. (Author)

40. Kossowska, Urszula. Wplyw jezior na warunki termiczne i wilgotnoscowe (na przykladzie wyników obserwacji w okresie lipca i sierpnia 1962 r) [Effects of the Water Surface on Temperature and Humidity Conditions from Observations in the Lake District in the Summer of 1962], Warsaw, Univ. Instytut Geograficzny. Katedra Klimatologii Prace i Studia, No. 2:32-61, 1967. Figs, tables. DAS M(05) W295tr.

...In July and August 1962 the climatology faculty of Warsaw Univ. made climatological investigations in the region of Lake Sniard. This paper deals with conditions of temperature and humidity observed in the Masurian Lakes based on the results of the special investigations and observations from the local official climatological stations. July 1962 was a cool month; its mean temperature was 2.5-3° cooler than the long-term mean and August was slightly cooler than normal. An analysis of the run of mean monthly temperatures throughout the day, and of the maxima and minima has shown that in the morning the region near the lakes does not differ distinctly from that of the remainder of the region - the lakeside region is cooler during the rest of the day and during the evening and at night. (Author)

41. Kowalczyk, Stefania. Verifikatsia meteorologicheskoi seti v Pol'she primeneniem analiza strukturnoi funktsii i maksimal'noi oshibki interpolatsii [Verification of a Meteorological Network in Poland by Using Analysis of Structural Function and of the Maximum Interpolation Errors], Warsaw. Idojárás, Budapest, 72(5):279-283, Sep/Oct. 1968. Tables. Hungarian and German summaries p 279. DAS M(05) I21.

...Structural function investigations are made for six regions of the Polish lowland. Monthly mean atmospheric temperature and maximum daily temperatures for the 10-year interval, 1951-1960, and temperatures at 1800 hrs for 1965 were analyzed. Station distances and station densities corresponding to different values of the interpolation error were computed. From this analysis, it is concluded that, in the case of sunshine duration observations, the north-south station distances may be greater than the east-west distances. (Author)

42. Kozłowska-Szczesna, Teresa and Paszynski, Janusz. Wstepne opracowanie mapy albedo dla Polski [Preliminary Map of Albedo for Poland], Przegląd Geograficzny, Warsaw, 37(2):387-393, 1965. Figs, table, refs, eq. Russian and English summaries pp 392-393. DAS M(05) P973a.

...In order to calculate the mean monthly values of albedo, the authors used albedo values for various kinds of surfaces obtained both from the available literature and from measurements taken in 1961/62 during field studies near Wojcieszów Górny. In this research, the authors utilized phenological data as well as records on the duration of the snow cover. Calculations of this kind were made separately for each district. On the basis of the mean monthly albedo values thus obtained, the mean annual and seasonal values of albedo were determined. The maps attached indicate the geographical distribution of albedo in Poland. Also calculated were the mean albedo values for individual months for the entire territory of Poland, thus showing the annual course of the albedo. (Author)

43. Koźmiński, Czesław. Próba wydzielenia obszarów źródłowych tworzenia się termicznych burz gradowych na terenie woj. kieleckiego [Attempt to Distinguish Source Regions of Formation of Thermal Hailstorms in Kielce Province], *Przegląd Geograficzny*, Warsaw, 37(3):521-532, 1965. Figs, tables, refs. Russian and English summaries p 532. DAS P Col.

...On the basis of hail records collected for 1951-1961 and of personal observation made in the Busko area, the author indicates on a map all hailstorms of thermal origin that occurred in Kielce Province. He also attempts to define the approximate size of areas from which thermal hailstorms have originated. Both hailstorms developed due to thermal conditions as a result of insolation, and storms originating from thermal conditions brought in by air movements were taken into account. By analyzing the material collected, the author was able to differentiate primary and secondary source regions active in the formation of thermal hailstorms. (Author)

44. Koźmiński, Czesław. Prawdopodobieństwo występowania posuch atmosferycznych w Polsce na przykładzie wybranych stacji meteorologicznych [Probability of Atmospheric Drought Occurrence in Poland on the Basis of Selected Meteorological Stations], *Przegląd Geofizyczny*, Warsaw, 11(2):111-114, 1966. Figs, tables, refs. DAS M(05) P973a.

...Data for 1948-1965 for 17 stations in Poland are given on the probability of occurrence of drought with a duration of  $\geq 9$  days and  $\geq 18$  days. (ILD)

45. Koźmiński, C. et al. Les circonstances synoptiques de l'occurrence de périodes gréligènes d'une durée de quelques jours au cours des années 1951-1956 en Pologne [Synoptic Conditions for the Occurrence of Hail Periods Lasting for Several Days During 1951-1956 in Poland], *Journal de Recherches Atmospheriques*, Toulouse, No. 1:7-17, Jan/Mar 1965. 2 figs, 4 tables, 9 refs. French and English summaries pp 7-8. DAS M(055) P994.

French

...Hail has been divided into three groups: I. Frontal hail in the cold, warm, occluded, and undulated fronts, II. Thermodynamic hail in the zone of convergence of air masses, shallow baric lows and in the zone of arrival of maritime tropical, old maritime tropical, and sometimes continental tropical air, and III. Thermal hail. This study proves that hail forecasting intended for a given region should be based not only on the analysis of the synoptic situation itself but on the knowledge of the physiographical conditions of the area considered. An attempt has also been made to determine the probability of the occurrence of prolonged hail periods with regard to the particular types of atmospheric circulation prevailing in Europe. (AV)

46. Koźmiński, C. and Piech M. Betrachtungen über die Häufigkeit der Hagelstürme und der Hagelschaden in Polen [Frequency of Hailstorms and Hail Damage in Poland], *Zeitschrift für Meteorologie*, Berlin, 18(5/7):286-289, 1966. Figs, table, refs. DAS M(05) 248.

German

...The hailstorm frequency and hail damage to crops are examined on the basis of data for a 39-yr period (1925-1963). During this period the frequency of hailstorms showed a considerable fluctuation. Three-year successive means of hailstorm frequency were correlated with sunspot number for individual years.

## 46. (cont)

The total hail damage gives a picture of both the distribution of hail and of the intensity of hail expressed as percent. The possibility of making forecasts 2 to 3 years in advance on the basis of the frequency of hailstorms and hail damage is considered. (ILD)

47. Koźmiński, Czesław. Występowanie opadów gradu na terenie powiatu Buskiego w zależności od warunków fizjograficznych [Occurrence of Hail-Fall in Busko County Depending on Physiographical Conditions], Czasopismo Geograficzne, Wrocław, 37(1):41-47, 1966. Figs, tables, refs. English summary p 47. DLC G72.C9.

...On the basis of data on hail-fall collected from 1947 to 1961, the author attempts to define the effect of physiographical conditions (such as relief, vegetation, soil types, geological structure, and hydrographical conditions) on frequency and distribution of hail occurrence in Busko County. The relief (especially its relative altitude) and its exposure to directions from which hailstorms most frequently arrive has the greatest effect on distribution and frequency of hail-fall. The correlation coefficient for hail frequency in relation to the altitude of the afflicted region is as much as + 0.93 for Busko County. As a rule, hail pellets increase in size with higher altitudes. A higher frequency of hail is reported principally from localities located SW, NW, and W of higher elevations and of forests and rivers than from localities in the opposite direction from such regions. This fact is related to the direction of transport of hail storms which, in Busko County, are predominantly from SW, NW, and W. (Author)

48. Koźmiński, Czesław. Wstępne wyniki pomiarów natężenia gradu na kilki stacjach meteorologicznych w Polsce [Preliminary Results of Hail Intensity Measurements at Some Meteorological Stations in Poland], Przegląd Geofizyczny, Warsaw, 11(2): 115-117, 1966. Tables, refs. DAS M(05) P973a.

...Data on the intensity of hail-fall at a series of all stations in Poland during 1962-1965 show date of fall, duration of fall, intensity, size of hail stones, type of hail storm, and type of air mass. (ILD)

49. Kozuchowski, Krzysztof. Rola sztucznych satelitów meteorologicznych w badaniach atmosfery [The Role of Artificial Meteorologic Satellites in Research of the Atmosphere], Przegląd Geofizyczny, Rocznik 14(22), (3-4):349-362, 1969. 6 figs, 32 refs. DAS M(05) P973a.

...The meteorological satellites form an important link in world weather service, where they act as extra-atmospheric meteorological stations and devices for transmission of information.

The principal lines of meteorological satellite research are: structural analysis of clouds based on continuous observation of cloudiness over both hemispheres, and on measurements of the earth/atmosphere radiation balance. Satellite observations allow one to perform indirect measurements of a number of meteorological elements such as: temperature of the earth's surface, vertical temperature gradient, cloud height, phase structure of clouds, air humidity, wind velocities, etc.

## 49. (cont)

A specially important object of satellite meteorology is determination of the interrelations between the obtained results, notably between patterns of cloudiness and the field of infrared earth radiation, with the respective synoptic situation. This would enable us to work out methods for determination of the synoptic situation by using satellite observations and, thus, fill the gaps in the data supplied by terrestrial observation nets. (Author)

50. Kuczmarska, Lutoszawa and Paszyński, Janusz. Przebieg roczny całkowitego promieniowania słonecznego w Polsce [Annual Variation of Global Radiation in Poland], *Przegląd Geofizyczny*, Warsaw, 9(3/4):275-279, 1964. Figs, refs. French summary p 279. DAS M(05) P973a.

...The annual global solar radiation, as recorded at several Polish meteorological stations, was observed with respect to the annual amplitude of monthly total variations, to the ratio of the 6-mo total in summer (Apr-Sep) to the annual total, and to the periodicity coefficients. Charts present the repartition of the selected variations. (SN)

51. Kupczyk, Elzbieta. Warunki synoptyczne występowania wezbrań roztopowych w Polsce południowej [Synoptic Conditions Favoring the Occurrence of Snowmelt Floods in South Poland], *Przegląd Geofizyczny*, Warsaw, 13(2):143-156, 1968. Figs, tables, refs. English summary p 156. DAS M(05) P973a.

...An attempt is made to define those typical synoptic conditions that cause meltwater floods on mountain streams of southern Poland. Synoptic analysis of the surface charts of pressure distribution in 78 flood periods was the basis of eight typical synoptic situations in which meltwater floods occur in South Poland. The types of the meltwater floods were distinguished according to radiation, advection, and advection-precipitation floods. The advection-precipitation floods are produced by southern cyclonic situations and by those of intense northwestern inflow. The occurrence frequency of both of these types is low. Violent advection floods appear most frequently with the southwestern cyclonic circulation. The other situations represent the highest percentage in the total number of examined cases. A tentative effort was made to define the course of the floods in relation to the type of meteorological conditions prevailing in the basin at melting time. (Author)

52. Kuziemska, Danuta. Typy pogody okresu zimowego w Polsce [The Weather Types in Poland in Winter], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 93:3-12, 1968. Figs, charts, tables, refs. Polish summary p 3; Russian and English summaries p 11. DAS M(055) P762p.

...The weather types are defined on the basis of the tripartite classification of daily means of air temperature and daily sums of atmospheric precipitation for the period 1946/1947-1960/1961. From the comparison of weather types and simultaneous types of circulation for winter, the results show that 1) during the circulation types A, CB, D, E, and E<sub>1</sub>, mainly one weather type prevails in Poland and 2) during the circulation types B, C<sub>2</sub>D, and D<sub>2</sub>C, certain geographic differentiation is noted in spatial distribution of weather types in the area of Poland. (Author)

53. Kuziemska, Danuta. Typy pogody w Polsce w okresie wiosny, lata i jesieni [The Weather Types in Poland in Spring, Summer, and Autumn], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 93:13-30, 1968. Figs, charts, tables, refs. Polish summary p 13, Russian and English summaries p 29. DAS M(055) P762p.

...The geographic distribution of the weather types over Poland for the months from March to November are compared with circulation types classified from the period of 1947-1961. (LB)

54. Kuziemski, Jerzy and Lutowska-Dziadziuszko, Bernadetta. Wpływ brzegowej (na przykładzie Kolobrzegu) [Effect of the Sea on Air Temperature Formation in the Coastal Zone (Based on the Example of Kolobrzeg)], Przegląd Geofizyczny, Warsaw, 12(2):107-120, 1967. Figs, tables, refs. English summary p 120. DAS M(05) P973a.

...This study is based on air temperature measurements made in 1961-1963 at the Kolobrzeg dune station (w), located at approximately 70 m distance from the shore line and the Kolobrzeg synoptic station(s), lying at approximately 400 mi distance from the shore line. In the analysis temperature differences exceeding 0.1°C, calculated with reference to the synoptic station, were used primarily. The values of those differences and their frequency were examined both in respect to the diurnal course and the annual course, and correlated with the observational data on water temperature in the shore zone, wind direction, and cloudiness. The influence of the sea on the formation of air temperature over a coastal zone of several hundred meters width is often balanced, or even exceeded, by local environmental factors, (e.g., the influence of the town). The temperature of the shore water, though not equivalent with the thermal state of the deep sea, may yield useful information on the pattern of the thermal conditions in the coastal zone. (Author)

55. Lambor, Julian. Frequency of Intense Rainfall for the Territory of Poland. Journal of Hydrology, Amsterdam, 5(2):158-162, Jun 1967. Fig, table, eqs. DLC GB651.J6.

English

...On the basis of observations of rain storms recorded at pluviographic stations, the author calculated an intensity-duration-frequency formula. For the computation, daily data have also been used from stations whose observational period exceeds, in some cases, 100 yrs. From records of stations situated in different geographical conditions and at different altitudes above sea level up to the inversion limit, the author finds a systematic variation in the coefficients of the formulas. The formula can be adjusted to different regions by introducing the mean annual precipitation. (Author)

56. Lambor, Julian. Podstawy i zasady gospodarki wodnej [Principles of Water Economy], Warsaw, Wydawnictwa Komunikacji i Łączności, 1965, [Poland] Państwowy Instytut Hydrologiczno-Meteorologiczny. [Seria A] Instrukcje i podręczniki, nr. 60, 436 p. Figs, photos, maps, tables, refs. DAS M79 L225p.

...The book is an extension of previous volumes on Water Economy published by the author between 1955 and 1962. It provides an overall picture of the specified topic and opens new views on problems met by the engineer, economist, and project-engineer in planned water supply, and tries to solve problems of the



56. (cont)

global water balance. The building of dams in ancient times contrasts with present elaborate hydrologic constructions. The influence of water circulation on climate and even secular climatic trends in Poland are under study, as well as the purposeful modification of climate introduced by hydrological conditions. The role of forest on temperature control and the rate of forestation governing the runoff, as well as swollen streams, are discussed. The strong dependence of agriculture and industry on water supplies is emphasized, and water needs in basic industrial plants are outlined. The erection of nuclear power plants raises the problem of water pollution and the means of its purification. Attention is paid to harm in salting of flowing fresh water, while means of desalting of sea water are gaining in importance. Some future planning in Polish water economy is envisioned. (SN)

57. Lewinska, Janina. Opady atmosferyczne w Wielkim Krakowie [Atmospheric Precipitation in Greater Cracow], Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 91:19-28, 1967. Figs, charts, tables, refs. Polish summary p 19; Russian and English summaries pp 27-28. DAS M(05) P762p.

...Presents the measurements of precipitation in the Greater Cracow areas for the years 1951-1960 from 40 measuring stations and for the years 1956-1960 from 65 measuring stations. The isohyetal system thus obtained makes it possible to determine the influence of urban environment on the atmospheric precipitation regime, of which the quantitative index is the difference of precipitation amounts reaching to 30% of observed values. The precipitation distribution in the central part of the city implies the existence of the area of ascending currents and, situated at the fringes, the area of descending currents characterized by the diminished intensity of precipitation. (Author)

58. Madany, Romuald. O opadach sniegu i szacie snieznej w Karpatach Polskich w okresie 1951-1955 [On the Snowfall and Snow Cover in the Polish Carpathians 1951-1955], Przegląd Geofizyczny, Warsaw, 6(3):131-146, 1961. 7 figs, 8 tables, 10 refs. English summary p 146. DAS M(05) P973a.

...Analysis of the observational material for the period 1951-1955 leads to the conclusion that in the Polish Carpathians the yearly average days with snowfall, the yearly average days with permanent snow cover, and also the depth of the latter increase with rising altitude above the sea and with the shift to the west. The longest periods of potential snowfall and snow cover are found in the central mountain regions of the investigated part of the Carpathians. Even the duration of the snow blanket differs in the western and in the eastern part of the Polish Carpathians. (Author)

59. Marzec, Zdzislaw and Okolowicz, Wincenty. Influence of the Roznow Reservoir on Some of the Meteorological Elements in the Dunajec Valley. (Conference on Meteorology of the Carpathian Mts.) Konferencija za Karpatski Meteorologii, 3rd Belgrade, May 27-30, 1965, Utica; Karpata na vreme. Belgrade, 1966. pp 373-377. Figs, tables. DLC QC 989.C9m38

English

...The influence of a reservoir on climatic conditions of the surrounding region was investigated, beginning in 1958, using data from a micro-climatic network of stations around Roznow Lake. For comparison of the climatic conditions around the Roznow Reservoir and beyond it, data compiled by the Roznow and Tegoborze stations and by meteorological stations situated beyond the influence of the Reservoir in the Dunajec Valley were tabulated. The tables show the beneficial influence of the Reservoir on air temperature, with temperatures up

59. (cont)

to 9° milder in winter around the Reservoir than in other localities. However, the effect of the Reservoir on humidity is not yet clear. (SN)

60. Marzec, Zdzislaw. O zrozowskach na dnie doliny Dunajca (Swiniarsko i okolice), [Concentration of Cold Air on the Dunajec Valley Floor (Swiniarsko and Environs)] Przegląd Geofizyczny, Warsaw, 10(3/4):307-309, 1965. Table. DAS M(05) P703a.

...Minimum negative temperatures in Swiniarsko (49°36'N; 20°39'E) and Brzezna (49°36'N; 20°37'E) were compared. Both meteorological stations are located in the Dunajec river valley surrounded by mountain ranges up to 1000 m high. The tabulated temperatures at the above stations show that the occurrence of negative temperatures is much more frequent in Swiniarsko than in Brzezna. The highest differences occur with a clear sky and weak wind. (SN)

61. Mather, John R. (Ed.). Average Climatic Water Balance Data of the Continents. Part V. Europe. Publication in Climatology, Vol. XVII, No. 1. C.W. Thornthwaite Associates, Laboratory of Climatology, Centerton, N.J., 1964. 229 p. Mostly tables. DAS M8 D777.

English

...Mean monthly values of potential evapotranspiration (PE), precipitation (P), soil moisture storage (ST), actual evapotranspiration (AE), water deficit (D), and water surplus (S) are given for 58 stations in Poland. (ALS)

62. Michalczewski, Jerzy. Synoptyczne warunki występowania bryzy morskiej na polskim wybrzeżu Bałtyku, [Synoptic Conditions of Occurrence of Sea Breezes on the Polish Baltic Sea Coast], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, [n.s.], 1(2):29-40, 1965. Figs, refs, Russian and English summaries pp 39-40. DLC QC 989 P7 W27.

...Relationship between the variation and range of sea breezes on the Polish coast of the Baltic Sea and the synoptic situation with respect to 4 typical situations were examined. Maximal breeze range, shown on charts, was 70 km in the western part. In certain situations a zone of anticyclonic curvature of streamlines associated with descending motions of the air was observed before the breeze front. A correlation between the direction and the speed of the breeze and of the land wind was noted. (Author)

63. Mikulski, Zdzislaw. Hydrologiczna i meteorologiczna tematyka naukowobadawcza w najbliższych latach [Program of Hydrological and Meteorological Research in the Coming Years], Gospodarka Wodna, Warsaw, 26(228):3-5, Jan 1966. DAS M(055) G676gos.

...The development of hydrology and meteorology in 1965-1970 was viewed by the Institute. The planning concerns the water balance, dynamics of river beds and erosion, thermodynamic processes of landlocked waters, water circulation in nature, structure and dynamics of seas, physical processes in the free atmosphere and in frictional regions, dynamics of air pollution, climatic conditions in Poland and their impact on Polish agriculture, and methods of hydrologic measurements and their automation. However, the chief aim of the research is directed at the improvement of forecasting, the length of the forecast period, and the extension of forecasting to phenomena not yet forecast. (SN)

June 19, 1962

64. Molga, Marian. Polska agrometeorologia w sluzbie rolnictwa, (z okazji II Swiatowego Dnia Meteorologicznego), [Polish Agrometeorology at the Service of Agriculture (on the Occasion of the 2nd Meteorological World Day)], Przegląd Geofizyczny, Warsaw, 7(1):pp 3-10, 1962. DAS M(05) P973a.

...This article contains a brief account of the history of agricultural meteorology in Poland and a description of the present agrometeorological service in Poland, including its scientific and applied work. (ILD)

65. Molga, Marian. Lokalizacja, rozkład czasowy i struktura opadów gradowych w Polsce, Cz. II, Rozkład czasowy opadów gradowych, struktura gradzin i dynamika gradobic na tle sytuacji pogodowej [Localization, Timing, and Structure of Hail in Poland, Pt. 2, Frequency of Hail, Structure of Hailstones, and Dynamics of Hail in Relation to Weather Situation, Roczniki Nauk Rolniczych, Ser. ., Roslinna, Warsaw, 90(4):449-474, 1966. Figs (fold), tables. Russian and English summaries pp 472-474. DLC SB 13.R6

...From the 1956 observations it is found that the greatest frequency of hailstorms occurs in Poland in the afternoon. Nearly half of all occurrences were observed from 1400-1800 h. The daily distribution in percentage of the total of occurrences is as follows: 0000 to 1000 hr 4.7%; 1000 to 1400 - 38.5%; 1400 to 1800 - 45.4%; 1800 to 2000 - 6.7%; and after 2000 - 4.7%. In coastal locations, the daily distribution is even more than that of other regions of the country and the maximum frequency occurs there later in the day. The most important feature of hailstone structure from the agrometeorological point of view is their size. On the basis of 24,363 observations of hailstone size in 1956, a frequency curve of hailstone size is drawn which is of moderately asymmetric distribution with a maximum hailstone size of 0.4-0.6 cm (radius). (Author)

66. Molga, Marian. Lokalizacja rozkład czasowy i struktura opadów gradowych w Polsce. Czesc 3, Lokalizacja gradobic w wojewodztwie kieleckim (okres obserw. 1946-1960) [Localization, Time Distribution, and Structure of Hail in Poland, Pt. 3. Localization of Hail in Kielce Province (Observation Period 1946-1960)], Roczniki Nauk Rolniczych, Ser. A, Roslinna, Warsaw, 92(1):109-126, 1966. DLC SB 13 .R6

...Three marked regions of hail frequency can be differentiated in Poland: a region of sporadic hail occurrence, of medium hail occurrence (on the average, 6-10 occurrences a year), and of frequent hails (on the average >> 10 occurrences a year). The period 1946-60, constituting a sector of hail wave over 30 years long, covers two shorter periods of the same length with different hail occurrences: 7 yrs (1946-1952) with relatively little hail, and 9 yrs (1952-1960) with abundant hail encompassing both a part of the wave bottom and a part of the crest. The 15-yr period 1946-1960 should be regarded as the shortest necessary and sufficient observation time interval representative enough for an analysis of the quantitative hail conditions over Poland. (PAK)

67. Molga, Marian. Studium Agrometeorologiczne Nad Geograficznym Rozkładem Wody w Glebie Na Początku Okresu Wegetacyjnego w Polsce [An Agrometeorologic Study on Geographical Distribution of Soil Water at the Beginning of the Vegetative Period in Poland], Przegląd Geofizyczny, Rocznik 14 (22) Zeszyt 2, Warsaw, 1969, pp 151-179, 7 figs, 7 tables, 14 refs. DAS M(05) P973a

...The author bases his work on measurements of soil moisture with dryers performed during several years, concurrently with visual observations of this

## 67. (cont)

element, at nine agrometeorological stations in Poland, and on visual estimates of soil moisture made in 190 points of the country in the 10-year period 1957-1960.

Developing statistical correlations between the measurement results and the soil-moisture estimates at agrometeorological stations, the author - after suitable regionalization of the 190 observations points - succeeded in expressing the results of soil-moisture estimates in percentages of the values obtained from measurements of soil moisture with the drying technique.

Since soil moisture is a microclimatic element whose geographical distribution can for this reason not be determined by using the ordinary method of linear interpolation, the author proposed the concept of transferring this element to the range of a wider climatological scale by expressing soil moisture indirectly in microclimatological elements. (Author)

68. Morawska, Maria. Mgły w Krakowie (1861-1960) [Fogs in Cracow, 1861-1960], *Przegląd Geofizyczny*, Warsaw, 11(3):171-181, 1966. Figs, tables, refs. English summary p 181. DAS M(05) P973a.

...The city of Cracow has a high incidence of days with fog. The 100-yr average shows 60 days with fog annually, but in the past decade this figure has risen to 68 days. This great increase within the last 10 yrs is probably connected with the considerable progress of industrial production in Cracow during the decade. In the 100-yr period there were noted 14 yrs in which the number of days with fog exceeded 100, of which two occurred near the end of that period. In the years 1958-1960, the annual difference of days with fog between the center of the city and its periphery amounted to 78 days. Comparison of the curve of the number of days with fog and the curve of summer-winter amplitudes of temperature between summer and winter indicates fairly good agreement between them. This appears to imply that, under defined conditions, higher continental influence may contribute to a numerical increase in days with fog, and higher oceanic influence to their decrease. (Author)

69. Mycielska, Hanna. Przykład ilustrujący związek między położeniem frontu a rozmieszczeniem maksymalnych opadów [An Example to Illustrate the Relation of the Position of a Front to the Distribution of Maximum Rainfall], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, *Wiadomości Służby Hydrologicznej i Meteorologicznej*, [n.s.], 1(3/4):21-30, 1965, issued 1966. Figs, refs, Russian and English summaries pp 29-30. DLC QC989P7W27.

...Since the analysis, made with the microsynoptic map of southern Poland on which the isolines of the horizontal air streams were drawn, proved a close interrelation of the meteorological processes to the substratum, the synoptic analysis could be treated independently from the geographic location. To study the rainfall, it is necessary to draw maps of rainfall distribution for the natural periods. The study proves that one of the causes of the activation of the front is the change in the circulation, produced by the adaptation of the atmospheric motions to the changing pressure distribution; it influences the formation of the vortices of air streams near the front, which induce the undulation on the front line. (Author)

70. Okolowicz, Wincenty. Amplitudy temperatury powietrza w Polsce [Atmospheric Temperature Amplitudes in Poland], Przegląd Geofizyczny, Warsaw, 12(3/4):239-249, 1967. Figs, English summary pp 248-249. DAS M(05) P973a.

...The amplitudes of diurnal temperature variations in Poland are given, as is a map of amplitudes for selected months (Dec, Mar, Jun, Sep), that is, those including the shortest and the longest day and spring and fall equinox. The maps also show the thermal effect of the Baltic on the adjacent coastal areas which is especially marked in the case of the Lower Vistula valley and the depressions in its delta region. The mountain and submontane areas, as well as the eastern border areas of Poland in which greater amplitudes are noted, are under the influence of the specific action on the climate of the adjacent mountains or in the east -- of the more pronounced continentality. Analysis of the maps indicates that even the relatively small elevations located in the northern lake district exercise a significant influence on the thermal conditions of the particular regions. The annual mean amplitudes of diurnal temperature variations are given. They were computed as the difference between mean maximum and mean minimum air temperatures for the period 1951-1960 (similarly as the amplitudes of the particular months). The isorithms in the figure represent the difference between mean maximum Jul and mean minimum Jan temperatures. (Author)

71. Okolowicz, Wincenty. Zachmurzenie i opad wybranych miesiecy letnich 1962-1963R w Okolicy wielkich jezior mazurskich [Cloud Cover and Precipitation of Certain Summer Months of 1962-63 in the Region of the Large Masurian Lakes], Warsaw, Univ. Instytut Geograficzny, Katedra Klimatologii, Prace i Studia, No. 2:113-117, 1967. Figs, tables. DAS M(05) W295te.

...An analysis was made of cloud and precipitation measurements taken in the area around Lake Sniardwy in Poland during Jul and Aug 1962 and 1963 with a view to determining whether the lake surfaces in the area and the topography have any influence on the distribution of the two elements. Maps and tabulations are used to illustrate the data. The influence of both the lakes and the topography can be traced in the distribution patterns of both cloud and precipitation. Any increase brought about depends on the location of the land forms and their exposure to winds both on the surface and above. The location of the heaviest precipitation shifts as the wind varies in direction and speed. Cloud structure shows a similar shift. The influence of the lake surface depends on the temperature difference between the water and the air. Air advected from the north into the region studied, shows the effects of the nearness of the Baltic. (Author)

72. Okolowicz, Wincenty and Pelko, Irena. Temperatury minimalne w Polsce w latach 1951-1960 [Minimum temperatures in Poland, 1951-1960], Warsaw, Uniwersytet Instytut Geograficzny, Katedra Klimatologii, Prace i Studia, No. 3:68-89, 1968. Figs, charts, tables (2 fold), refs. English summary pp 88-89. DAS M(05) W295te.

...By using monthly records of daily observations of temperature minima measured in Stevenson screens for 91 stations in Poland, the author analyzes the minimum atmospheric regime for the period 1951-1960. The mean monthly temperature minima are negative from Nov in northeast Poland and in the mountains or from Dec in the greatest part of Poland until Mar (or Apr in the mountains); they attain their lowest values in Feb (about -5.0 to -10.0°C). In winter, the isotherms are meridional. Along the seacoast the temperature decreases landwards; in the remaining area, it declines from west to east; while in elevated regions, it decreases with increasing altitude above sea level. From Apr to Nov, the mean temperatures are above 0.0°C (in mountain regions from May to Oct). They are highest

## 72. (cont)

in Jul (12-18°C). The summer isotherms especially in northern Poland are parallel to latitude. In all Poland, the absolute minima are positive only in Jul and Aug. (ILD)

73. Olechnowicz-Bobrowska, Barbara. Rozkład dni z opadem w Polsce [Distribution of Days with Precipitation in Poland], (Katedra Meteorologii i Klimatologii WSR, Cracow), Przegląd Geofizyczny, Warsaw, 13(4):375-385, 1968. 3 figs, 9 refs, 1 table. English summary pp 384-385. DAS M(05) P973a.

...The frequency of precipitation over Poland was investigated by computing the monthly and annual means of precipitation  $\geq 0.1$  mm for 1951-1960 for 77 stations. Maps showing the geographical distribution are presented. The annual number of days with precipitation is distinctly lower in plains and depressions located in mountain foothills, such as the Silesian and Sandomierz Plains (except in Jun). The lowest number of days with precipitation in north and central Poland is observed in Mar, and in southern Poland in Oct. The greatest number of days with precipitation is observed in Jan, except in mountain regions where the maximum occurs in Jul. In spring the number of days with precipitation is greater in the southern and northern part of the country, while in the fall, northern Poland has more precipitation than southern Poland. (ILD)

74. Olszewski, Jerzy L. and Wozniak, Antonina T. Kompleksowa charakterystyka klimatu na przykładzie Wrocławia i Białowieży [Complex Climatic Description with Wrocław and Białowieża as an Example], Przegląd Geograficzny, Warsaw, 38(4):699-707, 1966. Figs, refs. Polish summary p 699; Russian and English summaries p 707. DAS P Col.

...The authors briefly discuss the methods applied in complex climatology initiated by Fedorov and expanded by Chubukov. In adapting these methods to Polish conditions, the following modifications were introduced; instead of temperature at 01 hour, these values were taken for 21 hour; in place of low cloudiness, total cloudiness was adopted; and in graphical studies, climatological seasons after Merecki were taken into consideration. By means of this modified method, the authors investigated Wrocław's climate for a period from 1947 to 1956. The mean pattern of the climate for this period is illustrated. A complex, climate characteristic considers 5 basic meteorological elements; air temperature, relative air humidity, precipitation, cloudiness, and wind velocity. (Author)

75. Parczewski, Władysław. Rozwój Państwowego Instytutu Hydrologiczno-Meteorologicznego w XX-leciu PRL [Development of the State Hydrological and Meteorological Inst., during the 20 Years of the Polish People's Republic], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, [n.s], 1(3/4):3-8, 1965, issued 1966. DIC QC989P7W27.

...The State Hydrological and Meteorological Inst. was established in Mar 1945 with the main purpose of reconstructing maps of surface and underground waters, systematic measurements of water flow, and the study of hydrologic help to national agriculture. For meteorological purposes a network of climatic stations was established. The complex study of the Tatra Mts receives special mention, as well as the maritime division, with headquarters at Gdynia, consisting of 300 self-recording stations and 90 stations at sea. Two vessels took part in the international survey of the Baltic Sea in 1964. Emphasis was placed on studies of water supplies in the country, because of a rising shortage of water. This

## 75. (cont)

work was facilitated by new instrumentation and the availability of computers. Atmospheric studies concentrated on investigations of the upper atmosphere by means of rockets reaching 400-km altitude and supplied information to the IQSY data center. An atlas of Polish climate is nearly completed and will contain 1500 climatic charts, including the thermal balance of water and evaporation. (SN)

76. Parczewski, Władysław. O występowaniu rosy, rosy białej i szronu w Polsce [Occurrence of Dew, White Dew, and Hoarfrost in Poland], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, [n.s.] 1(1):17-25, 1965. Figs, table, refs. Russian and English summaries pp 24-25. DLC QC989P7W27.

...On the basis of the data from 55 stations making observations of dew, white dew, and hoar-frost in the three international climatological hours of observation, the following were the results for the period 1949-1958 in Poland. Mean number of days per year with dew, white dew, and hoar-frost varies from 60 to 167; they occur most frequently along northern borders and in southern Poland with an elongation along the river Wisła towards the north. Mean number of days per year with dew varies from 50 to 136; in the warm season, the dew appears on the average every 2nd-3rd day, and occasionally even during the winter. The number of days with hoar-frost and white dew has a maximum in Mar and Nov. The maximum number of days with white dew occurs in May and Nov; in autumn, the number of cases exceeds over twice the number of days in the spring. (Author)

77. Parczewski, Władysław. Udział PIHM w Międzynarodowym Roku Spokojnego Słońca [Participation of the Polish Hydrological-Meteorological Institute in the IQSY], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, [n.s.], 1(2):11-17, 1965. Tables. DLC QC989P7W27.

...The participation of Poland in the IQSY will consist in studies of the thermal, horizontal, and vertical atmospheric circulation above 100 mb, radiation in the upper atmosphere and its relation to the distribution of ozone and water vapor, types of aerosols and clouds; relationship between solar activity and the temperature field, as well as the motion of atmospheric masses in the upper atmosphere. Atmospheric sounding by rockets was started in Poland in 1955 up to a height of 35-40 km. Observations of auroras and oceanographic research in the Baltic Sea were carried out in 1964. The synoptic station at Białystok will disseminate information on magnetic storms, solar activity, and cosmic rays. In addition, seismographic data and ephemeris of artificial satellites, obtained from Moscow or computed in Warsaw, will be reported to Czechoslovakia, Hungary, and the USSR. (SN)

78. Paszyński, Janusz. Distribution of Short-Wave Net Radiation in Poland. Idojaras, Budapest, 69(3) pp 129-134, May/Jun 1965. Figs, refs. DAS M(05) I21.

## English

...The annual totals of absorbed radiation on Poland over the period 1951-1960 have been computed for 60 meteorological stations. Maps are included showing average monthly values of global radiation for Jun and Dec, the average annual sum of absorbed radiation, and the average monthly sums of absorbed radiation, and the average monthly sums of absorbed radiation in Jun and Dec. (ILD)

## 78. (cont)

See also:

German

Paszyński, Janusz. Die Strahlungsbilanz Polens [The Radiation Balance of Poland], Zeitschrift für Meteorologie, Berlin, Vol 17, (9/12), pp 321-327, 1966. German and English summaries p 321. DAS M(05) Z48.

79. Paszyński, Janusz. Vliianie Karpat i Sudetov na Strukturu teplovogo balansa v Pol'she [Influence of the Carpathian and Sudetic Mts. on the Heat Balance Structure in Poland] (Conference on Meteorology of the Carpathian Mts) Konferencija za Karpatsku Meteorologiju, 3rd, Belgrade, May 27-30, 1965, Uticaj Karpata na vreme. Belgrade, 1966. pp 301-306. Figs, refs. Russian and English summaries p 301. DLC QC989.C9m38.

...With the aid of computation methods, mean monthly and yearly sums of the individual components of the heat balance of the underlying surface of Poland for 1951-1960 have been computed. The yearly variation and the mutual dependence of those quantities upon each other have been investigated. During the positive radiation balance, the quantity of heat, used for evaporation, amounts to from below 55 to > 75% of the sum of the radiation balance. This portion reaches its largest value in Silesia, on the northern slopes of the Sudeten Mts, and the outlet of the Moravian Gate, where it amounts to ~ 76%. However, on the slopes of the Carpathians, it is much less, reaching near 65%. This significant role of evaporation in the heat balance of Silesia seems to be due to the frequent occurrences of the foehn-type winds in this region. (Author)

80. Paszyński, J., Zuch, St., and Boniecka-Zółcik, H. Klimat Włocławka i Płocka [Climate of the Cities of Włocławek and Płock], Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, 7(5):199-211, 1960. Fig, 12 tables, 9 refs. Russian and French summaries p 211. DLC QC989.P7W27.

...The project of a dam construction on the Vistula at Włocławek stimulated the study of the climate of the Vistula Valley from data compiled by the State Institute of Hydrology and Meteorology. The plotting of isotherms classified Włocławek as pertaining to a warm region. Measurements of temperatures upstream and downstream from the dam showed a difference of 2°C which is assumed to be higher near the ground. The comparison of climates of Włocławek and Płock proved the temperature of Płock to be lower than that of Włocławek in the winter and higher in the summer. The overcast over both locations is much the same. Precipitation increases in an eastward direction. The Vistula Valley slows down the north winds, particularly on the right bank, protected by a high embankment. The construction of the dam at Włocławek is expected to enhance the climatic balance created by the river. The leveled river base will accelerate the wind velocity along the Vistula axis. The cooling effect of the water shed will be more noticeable in the spring and the dam will slow down the melting of the ice. In the summer, the widened water surface will stimulate thermal convection; it will contribute to a slight increase of relative humidity and will produce more frequent night fogs. (SN)



81. Pelko, Irena. Rosa, zamglenia i mgly w okolicy wielkich jezior mazurskich w miesiacach letnich 1961-1963g [Dew, Mist, and Fog in the Region of the Large Masurian Lakes during the Summer Months of 1961-1963], Warsaw. Univ. Instytut Geograficzny. Katedra Klimatologii, Prace i Studia, No. 2:109-112, 1967. Figs. DAS M(05) W296te.

...A report is given of a study of dew frequencies during the summer months at a number of stations in the area of Lake Sniardwy. During each July an increase in the number of days with dew was observed from SW to NE. During Aug 1962 the isotherms indicating equal numbers of days with dew ran concentrically around Lake Sniardwy. Higher frequencies were observed in regions where weak winds and calms occurred more often. The number of days with mist varied from none to 20/mo. In July 1963, when calm or weak NW winds predominated, mist formed most frequently adjacent of the Masurian Lakes. In other months the area was somewhat downwind of the Masurian Lakes area. Days with fog varied from 3 to 10/mo. Occurrence was principally over the Masurian Lakes and the fog usually effected two of the reporting stations at a time, rarely more. (Author)

82. Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny. Opady Atmosferyczne [Atmospheric Precipitation], Warsaw, Its Series Roczniki, First Year of Issue 1954. Latest issue seen 1963 (published 1968). Contents maps, charts, mostly tables. Contents and text in Polish and French. DAS M77.32/438 P762op.

Polish

French

...These yearbooks contain the same type of data in general. Tables of precipitation, precipitation type and intensity, number of days with precipitation, number of days with precipitation in the form of rain or snow exceeding 0.1 mm, and storms. Diurnal variations of precipitation as well as diurnal regime of snow cover, the yearly highest snow cover, and days with snow appearance and disappearance. Tables are supplemented by charts. (ALS)

83. Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny. Rocznik Meteorologiczny [Meteorological Yearbook], Warsaw. Almost entirely tables. Table of contents and text in Polish and French. (Its Series Roczniki). First year of issue 1954, last issue seen 1963, (issued 1968). DAS M06.1/438 R684ro.

Polish

French

...These volumes contain extensive tables of daily observations. Monthly and annual summaries of all meteorological elements, the dates of first and last frosts and length of frost-free seasons for numerous stations are included. Later volumes contain daily and monthly values of insolation. Beginning with 1966 this yearbook is issued in monthly sections with a supplementary thirteenth section of collective yearly data. (ALS)

84. Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny. Wyniki Pomiarow Temperatury Gruntu [Results of Soil Temperature Measurements], Warsaw, Its Series Roczniki - Almost entirely tables. Preface and table of contents in Polish and French. First issued 1946 -- 1960. Figs, maps, tables (1960 data published 1968). DAS M06.1/438 P762wy.

...These reports comprise data in English, Russian, and Polish; a map showing locations of stations at which soil temperatures were measured; plus an alphabetical list of these stations; a chart showing the periods during which soil temperature measurements were made at the various stations at 5-, 10-, 20-, and

## 84. (cont)

50-cm depths; soil profiles at the various stations; and tables of daily soil and minimum air temperature in the ground layer and the depth of snow cover, monthly and annual soil and minimum air temperatures in the ground layer and number of days with snow; also, monthly and annual mean minimum air temperatures in the ground layer (for stations at which no soil temperatures are measured). (DBK)

85. Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny. 40-lecie Polskiej Służby synoptycznej [40th Anniversary of the Polish Synoptic Service], Its Prace, No. 64, 1962. 52 p. Figs, tables, refs, eqs. Pertinent articles: Soboniak, Mieczysław, Przyczynek do teorii głównego ośrodka przemian synoptycznych średnich szerokości geograficznych [Contribution to the Theory of the Basic Nature of Synoptic Changes in Middle Latitudes], pp 20-27. Klimkiewicz, Marian, Zależność między wiatrem, stanem morza i elementami fal [Relationship between Wind, Stage of the Sea and Wave Elements], pp 34-38. Malicki, Jan, Przyczynek do opracowania długoterminowej prognozy surowości zimy w rejonie Bałtyku [Contribution to the Preparation of Long Range Forecasts of Winter Severity in the Baltic Region], pp 39-41. DAS M(055) P762p.

...The 40th anniversary of the Polish Meteorological Service was celebrated in Warsaw in 1962. The hydrological and meteorological services were merged into the State Hydrometeorological Institute. A permanent network of stations covered the North Sea, and extended to the Carpathian foothills. At the meeting, new methods of observations and forecasting of meteorological and hydrological events were discussed by several specialist. (SN)

86. Poland. Polish Academy of Sciences. Report of the National Committee for Geophysics and Geodesy of the Polish Academy of Sciences for IAMAP Plenary Session 1967. A Conference on Scientific Activity in Meteorology and Physics of the Atmosphere in the Period 1963-1967, Warsaw, 1967. 13 p. IPB Files.

English

...Contains a report on the various meteorological activities of Polish institutions. Also lists meteorological papers published subsequent to 1963. (DLB)

87. Poland (Polish Peoples Republic of). Rocznik Statystyczny 1969 [Statistical Yearbook 1969], Central Statistical Office, Warsaw, Year XXIV, 1969. Mostly tables. Over 700 p. Bureau of Census Library P75 A84, 1969.

...Part I, Chapter 1 contains meteorological and climatological information. The geographical situation, areas, frontiers, relief features, highest and lowest points of localities, mountain peaks, rivers, canals, lakes, and dams are also indicated and tabulated, where possible. The climatological data include mean monthly values of temperature and precipitation (1831-1930, 1931-1960, 1967, 1968) for several stations. Mean monthly cloudiness and sunshine data are also included for several stations, 1967, 1968. (ALS)

88. Prawdzic-Layman, Krzysztof. Klimat województwa szczecińskiego w świetle potrzeb rolnictwa [Climate of Szczecin Department from the Point of View of the Needs of Agriculture], Szczecin, K.W. PZPR; nakł. Wydawn. Wiadomości Zachodnie, 1961, 63 p. 17 charts, 23 tables, 37 refs. DLC QC989.P7P7.

...The planned development of agriculture in Szczecin Department was stimulated by the study of its climate which has been summarized in 15 charts and 23 tables. The results show that the most favorable conditions for raising sugar beets, wheat, and oil-producing plants are found in the western region. The elevated areas in the east are rather poor for agricultural purposes, as are the northern areas near the sea. It is suggested that forests be grown on poor soils. Plantations requiring much warm weather will grow well in the river valleys in the southern part of the department. (SN)

89. Przedpelska, Wiesława and Tomaszewska, Teresa. Wpływ wysokości i rozkładu opadów atmosferycznych na plony buraków cukrowych w Polsce [Influence of the Amount and Distribution of Precipitation on Sugar Beet Yield in Poland], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 90:31-39 issued 1966. Figs, tables, refs. Polish summary p 31; Russian and English summaries pp 38-39. DAS M(055) P762p.

...The investigations of the dependence of sugar beet yields on precipitation amount and distribution in the years of 1951-1960 were based on the results of precipitation measurements from 350 PIHM meteorological stations placed equally throughout Poland (excluding mountains). On this basis maps of precipitation amounts for the periods Apr-Sep (vegetation period), Apr-Jun (period recognized as deciding, in Polish climatic conditions, for supplying the sugar beets with water during their whole vegetation period), Jul-Aug decade (critical period) were analyzed. The method of rectilinear regression was applied. The precipitation amounts, computed as the mean values for each province, showed compatibility of the correlated values. (Author)

90. Rojecki, Ananiasz. W Piećdziesiątą Rocznicę Powstania Polskiej Państwowej Służby Hydrologiczno - Meteorologicznej. [The Fiftieth Anniversary of the Polish State Service of Hydrology and Meteorology], Przegląd Geofizyczny, Rocznik XIV, (XXII) Zeszyt 2, Warsaw, 1969, pp 132-150. DAS M(05) P973a.

...Fifty years have passed since the establishment in Poland of a Hydrographic Office, later renamed Hydrographic Institute and Meteorological Institute. After World War II, these were combined into the State Institute of Hydrology and Meteorology, and at present is known as Polish State Hydrological and Meteorological service. Basic advances in the services are discussed, and short resumés of organizers and directors from 1919 to date are given. (Author)

91. Sadowski, Maciej. Oblodzenie przewodów w Polsce [Ice Accretion on Electric Wires in Poland], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 87, pp 65-79, issued 1966. Figs, tables, refs. Polish summary p 65; Russian and English summaries pp 78-79. DAS M(055) P762 zesz87.

...On the basis of the observations of ice accretion on electric wires during 1956-1961, it was found that the average number of days with ice accretion on wires was 12.3; almost 70% of the cases of ice accretion occurred in Dec, Jan, and Feb. Soft rime occurred most frequently (about 43%), then glaze (about 33%),

## 91. (cont)

hard rime (about 13%), and snow pellets about (12%). Soft and hard rime occurred most frequently in Jan and Feb, glaze in Dec, and snow pellets in late autumn and early spring. In plain weight, values of ice accretion reached 160 grams in mountains, 580 grams per running meter of wire. Ice accretion in Poland does not pose a serious threat to communication and power lines. (Author)

92. Schmick, Adam. Wplyw miasta na opady atmosferyczne na przykladzie Wroclawia [The Effect of Cities on Atmospheric Precipitation, taking Wroclaw as an Example], Przegląd Geofizyczny, Warsaw, 12(3/4):293-310, 1967. Figs, charts, tables, refs. English summary pp 309-310. DAS M(05) P973a.

...Precipitation data of Wroclaw and its surroundings between 1957 and 1966 were studied for the preparation of a precipitation chart. In general, precipitation is heavier in the center of the city than in the suburbs. Thus, a town on a wide plain like Wroclaw attracts air currents, similarly to a terrestrial obstacle. Heavy rain storms of one day duration have a certain effect on the pattern of isohyetal lines of a specified month. It was also established that records of a single rainstorm cannot represent the precipitation conditions of the whole town. The large differences observed in the distribution of diurnal precipitation should be taken into account in an urban sewer system to facilitate drainage. (SN)

93. Stachý, Juliusz. Diminution de l'ecoulement riverain en Fologne au cours du siecle present [Decrease of Runoff Along Rivers in Poland During the Present Century], International Association of Scientific Hydrology, Bulletin, 13(1): 20-24, Feb 1968. Figs, table, refs, French summary p 20. DAS M(06) I611gb.

## French

...The mean monthly values of river flow in Poland calculated by 20-year intervals for the period 1901-1960 shows that a gradual decrease in river flow has occurred. The decrease in runoff along rivers is calculated for the principal basins of Poland and data are presented on the decrease of: mean annual river flow, mean annual surface flow, and the runoff index. The cause of this diminution is shown to be the decrease in precipitation during the period of 1901-1960. (ILD)

94. Stachý, Juliusz. Opracowanie przeplywow charakterystycznych rzek polskich w latach 1951-1960 [Survey of Flow Rates of Polish Rivers, 1951-1960], Poland, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomosci Sluzby Hydrologicznej i Meteorologicznej [n.s.], 2(2):11-18, 1966. Refs. DLC QC989.P7W27.

...The progress of Polish hydrology was hampered by lack of numerical data on river runoff. A project conceived in 1962 by the Polish Inst. of Hydrometeorology issued basic hydrological data for a "Prospective planning of a hydrological survey in Poland" in 1961-1980. The analysis of characteristic river flows covers activities of the hydrological service of water stage observations and river rates. Distribution of the network wurveying the water is considered sufficiently dense and comprises one station every 300 sq km and mostly concentrating on great rivers. A dense observation network is also found in agricultural areas of Silesia and Cracow and in mountainous areas. Shortages of data are noticed along small rivers in central Poland with observations too scarce for an overall survey of the country. The next project will cover the years 1961-1965. (SN)

95. Stopa, Maria. Czestosc wystepowania burz w okolicy wielkich jezior mazurskich [Frequency of Storm Occurrence in the Region of the Large Masurian Lakes], Warsaw, Univ. Instytut Geograficzny. Katedra Klimatologii Prace i Studia, No. 2:138-144, 1967. Figs, tables, refs. DAS M(05) W295te.

...The principal purpose of this study was to determine the influence exerted by the character of the land relief on the frequency of storm occurrence. The experiment was carried out during the summer months (Jul and Aug 1962 and Jul 1963) which differed in their macro-weather conditions. July 1962 was very cool, Aug 1962 was almost normal, while July 1963 was exceptionally hot. The results imply that during the summer, lakes are apt to increase the number of storms. The following explanation is suggested. During normal, or cooler than normal, summer months the effect of the lake surface is such that the areas surrounding them will be warmer than areas further distant so that a greater amount of convection will occur in the area of the lakes. In hot summer months, on the other hand, the increased storm frequency depends on the effect of the lakes on increasing humidity in their vicinity. (Author)

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96. Stopa, Maria. Podzial Polski na regiony burzowe [Division of Poland into Storm Regions], Przegląd Geograficzny, Warsaw, 37(4):659-668, 1965. Figs, tables, refs. Russian and English summaries pp 666-668. DAS P Col.

...The points of observation being distributed fairly uniformly over the Polish territory, the author considers the mean values reported from all stations to be representative for all Poland. In distinguishing separate zones, the author chose as a starting point, the mean values determined for all Poland while for distinguishing regions, she took as a basis the mean values obtained for given zones. Defined were the boundaries of zones and regions by determining divergences between the data obtained at a given point of observation and the mean value for all Poland or for the respective zone. Three principal zones were distinguished with the third being split into two sub-zones. (ES)

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97. Stopa, Maria and Przybylska, Gabryela. Wplyw jezior i rzezyby terenu na kształtowanie sie stosunkow terminiczno-wilgotnoscowych podczas upalnego lata (1963) [The Effects of the Water Surface and Topography on the Form of the Relationship of the Temperature and Humidity Field in a Hot Summer (1963)], Warsaw, Univ. Instytut Geograficzny. Katedra Klimatologii, Prace i Studia, No. 2:62-107, 1967. Figs, refs. DAS M(05) W295te.

...A report is given of a microclimatological study carried out during July 1963 in the Masurian Lakes area. The observations reported illustrate both the effects of the presence of the lake on observations at shoreside stations and also effects due to local katabatic circulations. Between 6-7 a.m. and 6-7 p.m., the influence of the Lake is to produce lower temperatures at the shore stations than elsewhere; overnight the effect is the opposite. The greatest differences occur immediately prior to the occurrence of maximum and minimum temperatures. The effect is most marked during the initial period of a spell of anticyclonic weather. The effect of downslope winds at night in creating inversions at the bottom of valleys and depressions was noted. This occurred on both clear and cloudy nights. The effect was most marked in the deeper depressions. Higher extreme temperatures occurred at the higher localities. (Author)

98. Strauch, Edward. Obiektywne metody meteorologicznych obserwacji burz [Objective Methods for Meteorological Observations of Thunderstorms], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, 2(2):29-38, 1966. Figs, refs. Russian and English summaries p 38. DLC QC989P7W27.

...Presents proposals concerning the organization of various thunderstorm observations, including radar observations, atmospheric observations, and lightning counters. All the above-mentioned kinds of observations have been undertaken and are in use at the Aerology Div. of Natl. Hydrol. and Met. Inst. In 1964 radar observations were started. In 1965 both the atmospheric observations, in collaboration with the Central European network, and the experimental lightning counter network consisting of 8 stations were begun. Some scientific and practical use of thunderstorm observations using the applied methods are given. (Author)

99. Strauch, Edward. Warunki meteorologiczne rozraszania mgieł w Polsce [Meteorological Conditions for Artificial Fog Dissipation in Poland], Poland, Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 92:17-23, 1967. Tables, refs. Polish summary p 17; Russian and English summaries p 23. DAS M(055) P762p.

...The author presents a detailed analysis of the meteorological conditions with respect to artificial fog dissipation in Poland. The following characteristics of fog formation in Poland were computed; the number of hours with fog in each month, the number of hours with supercooled and warm fog, the characteristics of fog temperature, the monthly mean number of fogs, and the duration of supercooled and warm fog. The above characteristics were computed on the basis of observational data for the years 1955-1959 published in the meteorological yearbooks of the National Inst. for Hydrol. and Met. Expected results of artificial dissipation of supercooled fog were considered. (Author)

100. Tomanek, Jakub. Badania nad kształtowaniem się pokrywy śnieżnej w zespołach leśnych białowieckiego Parku Narodowego [Investigations on Snow Cover Formation in Forest Communities of Białowieża National Park], Przegląd Geofizyczny, Warsaw, 12(3/4):223-237, 1967. Figs, tables, refs. English summary pp 222-223. DAS M(05) P973a.

...Snow-cover formation was studied in different forest communities and differences of thickness under various forest stands and in the open field were noted for monthly, annual, and many-year periods. The investigations were made in three, economically important, forest communities during the winters 1956/57-61/62. It was found that on open areas the depth of the snow cover undergoes wide variations, while in the forest a gradual increase of snow-cover depth from Dec to Feb and often to Mar is observed; in which months, it reaches maximum thickness. At the onset of winter, thickness of the snow cover is greater in the open than in the forest, while in the 2nd half of the winter, an inverse situation develops. Most snow passes through the trees to the ground, the thickest and most durable snow cover forming on low ground, a lesser one in mixed stands, and the smallest in coniferous forests. In the latter, it may be even less than on open ground. (Author)

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101. Trybowska, Elfryda and Trybowski, Czesław. Wilgotność powietrza w Rabce [Humidity in Rabka], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Prace, No. 91:41-54, 1967. Figs, tables. Polish summary p 41; Russian and English summaries pp 53-54. DAS M(055) P762p.

...Psychrometric data from 1934-1960 and hydrographic data from 1936-1939 and 1949-1960 were used. Relative humidity was computed during clear, cloudy, and moderately cloudy days. Maximum relative humidity occurred during night, often shortly before sunrise, and varied according to the amount of cloudiness. On clear days the lowest values were about 45%, while in spring, the lowest values sometimes decreased below 20%. Frequency of occurrence of relative humidity was computed in intervals of 5%. Values 96-100% were the most frequent in climatological hours of observation, constituting about 37.9% at 0700 hrs and 26.6% at 2100 hrs. The greatest number of cases in the interval 81-100% occurred during winter, summer, and autumn before nocturnal hours. Dates of water vapor pressure and humidity deficiency are included. (Author)

102. Walczewski, Jacek. Koncepcja wstępnych eksperymentów sztucznego oddziaływania na chmury [Project for Preliminary Experiments in Artificial Cloud Modification], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, 2(2):19-28, 1966. Refs. Russian and English summaries pp 27-28. DLC QC989.P7W27.

...Contains proposals for artificial cloud-modification experiments. The principles are related to Polish conditions and are based on the literature as well as on the results of practical work, performed in Poland with the consideration of reagent type, form of reagent's injection, reagent's transport means, experiment verification methods, and necessary weather conditions. A brief description is given of experimental balloon and rocket systems for cloud modification worked out in the Polish Hydro-Meteorological Inst. (Author)

103. Warakomski, Wojciech. Częstość występowania dni i okresów z poszczególnymi typami mas powietrza nad Polską [Number of Days and Frequency of Periods with Particular Air-Mass Types over Poland (1951-1960)], Przegląd Geofizyczny, Rocznik, Zeszyt 1, Warsaw, 1969, pp 67-77. 7 tables, 17 refs. DAS M(05) P973a.

...The number of days and frequency periods with particular types of air-masses overlying the whole territory of Poland in the decade 1951-1960 are given on grounds of synoptic surface charts for the observation hours 00, 06, 12, and 18 GMT.

Not taken in account were those days on which the presence of a frontal surface on the whole area of Poland appeared possible in the period 1951-1960.

The annual mean number of days with particular types of air-masses was 61.6 (frequency 16.9%).

The greatest part in the course of the year had the days with air PPK (7.4%), and, subsequently, those with air PPM, PPM, PA<sub>3</sub>, the smallest part the days with air PA (0.6%). Maximum frequency of days with particular air mass types occurred in March, minimum frequency in December. According to seasons, maximum frequency was noted in spring (19.3%); minimum frequency in winter (15.2%).

Periods with particular air-mass types were observed most frequently in March, June, May, and October. Record length of their duration was noted in October and March.

## 103. (cont)

The small number of relatively long periods (over 3 days duration) enjoins carefulness in drawing of conclusions regarding their distribution in future. Their occurrence may namely undergo considerable variance in dependence on the type of baric situation. (Author)

104. Wierzbicki, Zenon. Rozkład predkosci wiatru w Polsce na wysokości 10 i 25 metrow nad gruntem [The Distribution of Wind Velocities in Poland at Heights 10 and 25 m above Ground Level], Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny, Prace No. 93-63-75, 1968. Figs, charts, tables, refs. Russian and English summaries p 75. DAS M(055) P762p.

...This work should be of use to architects in determining the mean velocities (m/sec) and wind pressure ( $\text{kg/m}^2$ ), at 10 and 25 m above ground level as the heights of most buildings in Poland fall in this category. A table and diagram show the relations of wind speed to wind pressure. Another table contains mean wind velocities from 62 meteorological stations in Poland at the heights of wind vanes with values reduced to heights of 10 and 25 m above ground level. Maps of isotachs contain mean distribution of wind velocities at 10 and 25 m above ground level. (Author)

105. Wierzbicki, Zenon. Stan gruntu w Polsce [State of Ground in Poland], Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny, Prace No. 93:51-62, 1968. Figs, charts, tables, refs. Russian and English summaries p 62. DAS M(055) P762p.

...Presents climatic bases for planning, development of roads for wheeled vehicles, their maintenance, and exploitation. The hydrometeorological phenomena occurring on the ground were summarized for 55 meteorological stations for 1951-1960. To avoid individual errors of estimation pertaining to the area, some observations of the state of the ground surface using the international scale were combined into 6 groups. The results of observations, arranged in 6 groups, are presented in tables, maps, and diagrams. (Author)

106. Wiszniewski, Wacław. Kilka uwag o sieci meteorologicznej w Polsce (na marginesie prac nad atlasem klimatycznym Polski) [Some Remarks Pertaining to the Meteorological Network in Poland (Marginal Remarks Related to the Work on the Polish Climatic Atlas)]. Przegląd Geofizyczny, Warsaw, 5(1):3-18, 1960. 5 figs, 6 tables, 8 refs. English summary p 18. DAS M(05) P973a.

...Examination of the main kinds of networks (synoptic, climatological, and precipitation) proved the necessity for an appraisal of the present Polish network in order to obtain in the near future a solid base for a more detailed study of the climate of our territories, supported by meteorological data. It has been suggested that the geographic and hydrographic regions should form the foundation to establish the meteorological network of Poland as there is much more detailed information available on geographic and hydrographic, than on the proposed climatological regions, the division of which is based on relatively scant and incomplete meteorological material only. All geographical regions (79) should have a network of observation points of approximately equal density, more especially in the mountains. This applies also to observation of precipitation in the 34 hydrographic regions. The special networks, such as pluviographic, evaporimetric, actinometric, etc., should be arranged in such a way that at



## 106. (cont)

least one observation point be established in every region (or groups of minor regions). The observation points should obviously be placed in the most representative part of the given region so that they may be used for studying a variety of scientific problems. Additional temporary stations may be established if required for the study of urgent problems of national economic importance.  
(Author)

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107. Wiszniewski, Wacław. Kilka słów o Atlasie Klimatycznym Polski [Brief Note on the Climatic Atlas of Poland], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej [n.s.], 3(2):11-14, 1967. Russian and English summaries p 14. DLC QC989.P7W27.

...Summarizes the contents of the Climatic Atlas of Poland, prepared in the National Inst. for Hydrology and Meteorology, which will soon be in print. The Atlas will contain a few hundred climatic maps mostly for the period 1931-1960. It will contain many climatic maps of some meteorological elements for 3 successive 10-yr periods of the 30-yr period, and maps of all elements for the last decade, 1951-1960. In addition to the maps, wind roses will give information about anemometrical conditions at 126 stations. Diagrams will represent basic climatic elements for 31 selected stations expressed by the monthly means for Jan, Apr, Jul, and Oct and, on an annual basis, for the 1931-1960 period.  
(Author)

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108. Wiszniewski, Wacław. Niektóre charakterystyki opadów atmosferycznych w Polsce [Some Characteristics of Atmospheric Precipitation in Poland], Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomości Służby Hydrologicznej i Meteorologicznej, [n.s.], 1(1):27-31, 1965. Figs, tables, refs. Russian and English summaries pp 30-31. DLC QC989.P7W27.

...A map shows a generalized distribution of the number of days with precipitation equal or greater than 0.1 mm per yr in the period 1951-1960. A figure represents the annual course of some precipitation characteristics for Warsaw. The author recommends that, in climatological studies, an observation period of at least 5 yrs but preferably 10 or 20 yrs, beginning with 1st yr of the century, be used. This will facilitate future extension of such studies to longer periods and larger areas. (Author)

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109. Zinkiewicz, Andrzej. Częstość występowania średnich dobowych temperatur powietrza w niektórych miejscowościach południowo-wschodniej Polski [Occurrence Frequencies of Daily Mean Atmospheric Temperatures in Some Localities of South-eastern Poland], Przegląd Geofizyczny, Warsaw, 11(4):261-268, 1966. Figs, tables, refs. English summary p 268. DAS M(05) P973a.

...Characteristics of the occurrence frequency of daily mean air temperatures (OFMAT) (2° intervals) in 11 localities of southeast Poland for 1951-1960 are given. The mean air temperatures ranged from -28.0 to +29.9°C. Their range diminished in the south (-28.0 to +27.9°C in the north, and -22.0 to +29.9° in the south). The widest range of variations of daily mean air-temperatures in the course of the year was noted in Feb and Jan, the smallest in Aug, Jul, and Jun. The greatest number of days of the year had temperatures from 0.0-1.9°C (north and northeast) and temperatures from 16.0-17.9°C (south and southwest

## 109. (cont)

part of the region. During the year, positive air temperatures (80% of days) were more frequent than negative. Preponderant occurrence frequency of negative over positive temperatures was observed in Jan, Feb, and Mar in the east and southeast. Only small differentiation in the OFMAT during the year was noted in the southeast, which may be due to its small area and relatively slight ground relief. (Author)

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110. Zych, Stanislaw. Einfluss der Staussen im Gebirge auf die Änderungen des Lokalklimas [Influence of Reservoirs in Mountains on Local Climatic Changes], Konferencija za Karpatsku Meteorologiju, 3rd, Belgrade, May 27-30, 1965, Utica, Karpata na vreme. Belgrade, 1966, pp 185-191. Figs, tables, refs. German and English summaries pp 185-186. DLC QC989.C9m38.

German

...A change in the thermal conductivity, thermal capacity, and humidity of the underlying surface result in a change in the turbulent mixture of the lowest air layer, a change in the evaporation from the underlying surface, in the air stratification, in the local advection, and in other characteristic phenomena of the local climate. After 1930 a retention reservoir was constructed near Otmuchow (Sudets) on the Neisse River. A comparison of the mean temperatures for 2 periods, 1881-1930 and 1951-1960, showed small temperature differences. Influence of the recently-constructed reservoirs in the Vistula Valley at Goczalkowice-Zdroj (West Carpathians) on fog frequency and water tables in the surroundings areas is discussed. Possible modifications of the climate due to the construction of the planned reservoir on the Dunajec River at Czorsztyn (West Carpathians) are analyzed. (Author)

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| <p>This bibliography contains 153 references to environmental studies (1960-1969) concerning the Polish Peoples Republic (POLAND). Forty-three of the items reference translations of Polish articles and are placed separately in the text. Five previously published bibliographies on the same area are also referenced. Entries are entered alphabetically by author and a Subject Index is included.</p> |   |                                    |

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